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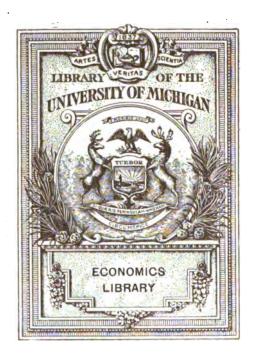
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THE ART OF ECONOMIC DEVELOPMENT

PROFESSOR H. STANLEY JEVONS, M.A., F.S.S., F.G.S. UNIVERSITY OF ALLAHABAD

I.—Introduction¹

The development of the economic resources of a country is a familiar idea, connoting the discovery and mining of its mineral wealth, the improvement of agriculture, and the construction of railways, docks, and so forth. Development, understood in this sense. has been proceeding apace during the past hundred years, first in England, France and Holland; then in North America, and in the rest of Europe; and later in India, Australia, Africa, South America and Japan. The past few years have seen the commencement of the same process in Asia Minor and in the thickly populated territories of China. Yet all this enormous investment of capital, this revolution in the material environment of life, is undertaken with hardly any kind of guiding principle other than the business man's quest of profits or the State's desire to benefit its people. There is no definite conception of the objects

¹ A summary contents of the whole of this article will be found at the end, see p. 68.

aimed at; nor of any orderly sequence of works and measures such as might be designed to secure a maximum of ultimate advantage at the minimum of cost, and at the same time distributing burden and advantage fairly between the present and future generations. Yet geographical knowledge and economic theory have now advanced to the stage which makes it possible to devise such a sequence. Instead of every project for a new railway, or for more roads, being considered by itself and on its own merits alone, as is the usual practice, it is clearly shown by economic theory that such projects should be treated as parts of a comprehensive scheme of development of the whole region, and be judged accordingly.

This new point of view opens up an entrancing vista of possibilities. The best alignment of roads, railways and canals will be determined ab initio on geographicoeconomic principles; the most advantageous order in which their construction should be undertaken will be known; the most profitable time of starting, and speed of completion of each work, will be determinable according to the funds available. If different agenciesthe State, local authorities and private companies—are all to take part in the development scheme, each company or authority will find ready for it in the general program a work within its sphere or capacity, which it may take up under the general direction and control of the State. By thus co-ordinating in their conception and planning all works of public utility within a wide region there will be a vast increase of their efficiency.

The earning capacity of every kind of work, whether it be a railway, canal, or electric supply, depends in large measure on the effectiveness of the services being rendered to the community by other works of public utility. A railway company can do little or nothing to secure the making of roads or irrigation canals, or to

promote agricultural instruction and credit facilities, in the districts it serves. Yet these correlative works and measures, if undertaken simultaneously with the building of a projected railway, would often change it from a bad speculation to a certainly profitable investment. But the same is true of the roads, the irrigation canal, and the agricultural instruction—each one is comparatively ineffective without the services of the other. In simple terms when all these measures are considered together: 2+2+2+2 does not make 8, but 18 or 20.

It will be observed, therefore, that by a proper co-ordination of different measures for developing a tract of country, not only may the risk of undue delay in earning interest be eliminated, but schemes may thus become profitable which could not be so otherwise until the slow changes of a generation or two should have increased the numbers or standard of living of the population. By means of a co-ordinated program, however, the development of a country may proceed far more rapidly and safely than by the present haphazard way of independent undertakings.

The economic development of any tract of country is, therefore, properly speaking in the first place a problem of applied economics. The first stage is to prepare a program, i.e., to decide on the proper order of construction of the various works needed, such as railways, roads, canals, drains, markets, schools, etc.. and their mutual relations to one another so that each may be of the greatest utility. The second stage is to call in the engineers and determine the cost of the various proposed works, the rate of return which they promise, and the time which would be needed for their completion. The third stage is the work of the financier to provide the ways and means. He has to investigate what funds may be available, and to what extent borrowing can be resorted to. He

must then discuss with the economist and the engineer the effects of suggested variations or curtailments of the original program with view deciding what proposed reductions or economies, some be necessary, can be effected with the least sacrifice of utility. In all this re-adjustment to bring the program within practicable limits the problem of how to obtain the maximum advantage from the capital available for outlay is essentially one involving economic principles, as well as the principles of sound finance. Even these latter are not sufficiently widely understood, and a proper formulation of financial principles in relation to development is badly needed. If rightly applied, these principles will enable the State and the promoters of public utility undertakings errors which are only too common in both directions—I mean, on the one hand unremunerative outlay of capital, and on the other hand that excessive caution, which often means loss of opportunities and consequent stagnation, and is due to want of confidence through having an insufficient knowledge of the fundamental principles of economics and finance.

So far as is possible within a brief article, I proceed now to enumerate and explain the chief principles applicable to developing a country. They fall conveniently into five groups. The first group to be recognized is of a geographic and demographic character, and concerns mainly the close relation existing between the activities of the people inhabiting any territory and the geographical configuration of the latter. The second group contains the economic-geographic principles relating to trade between different places, and to transportation of commodities; the third group is that of the purely economic principles of consumption and production; the fourth group contains the principles of finance; and the fifth group consists

of the social and legal principles involved. It would need a series of volumes on geography, international trade, economic theory, and on sociology, ethics and political theory, public and private finance, equity and jurisprudence, fully to state and explain all the principles which have to be taken into account—in fact they are practically co-terminous with the scope of the respective sciences I have named. It will be possible only for me to indicate those principles which are of most vital importance in practically all the problems connected with development. The actual problem of the development of a special region may well require the knowledge and application of other and less widely known laws of the sciences concerned.

II. GEOGRAPHICAL AND DEMOGRAPHICAL PRINCIPLES

- 1. Necessity for Geographical Knowledge.—Geographical principles do not at first sight appear to have a close bearing on economic development, and they are usually left out of account; but this would be a serious mistake in the preparation of any comprehensive and orderly program of development. Geography is the science describing the surface features of the earth and their relation to climate, and the. effects of both on the distribution of man and of animal and vegetable life. Demography is the detailed study of the distribution of mankind as to density of population, races, religions, occupations and forth, most of its information being provided by the census. A thorough knowledge of geographical principles, and a close study of the geography and demography of any area to be developed is absolutely essential, as a preliminary to a consideration of proposed measures of development.
- 2. Geographical Units. -- Any extensive territory falls naturally into geographical units, the recognition

of which is of the first importance. There are units of three classes: (1) complete river-basins, (2) portions of river-basins, (3) plateaux, or portions of mountain The larger the river basin under consideration, the greater the importance of its sub-divisions as units. For example, the Tapti River basin might be treated as falling into three units—the main valley and its two upper limbs; the Mahanadi into four units-the fan or cirque of the upper tributaries of each of the two important branches, the main valley, and the delta. In the Ganges valley quite a number of units may be recognized: the mountains, foot hills, the submontane tract (terai), the Great Doab, Bundelkhand, Ganges-Sarda-Gogra Doab, Bihar lands, Central India Plateau, and so forth. Similarly we find well marked geographical units in countries, e.g., in Great Britain where we distinguish the Thames basin, the Weald of Kent, South Coast, Devon Cornwall Peninsula, South Wales, Midlands. Lancashire-Cheshire plain, Ayrshire, Firths of Clyde and Forth, Fifeshire, etc.

3. Density of Population, Occupations and Racial Characters.--If the watersheds are in strong relief the population will be concentrated mainly in the valley bottoms and lower slopes, these providing the fertile lands and the sites favourable to the growth of towns; and it must continue to be so concentrated, excepting only where mineral wealth is discovered and developed. The occupational distribution is broadly as follows. The higher mountain regions are inhabited by bold and hardy tribes who gain their living by hunting and pasturing sheep, goats, etc., and sometimes by marauding. On the upper slopes a rough cultivation provides a bare subsistence, and but little more, for a rough and hardy people, and others get their living from the forests. In the rolling country usually Digitized by Google

characterizing the lower slopes we find the land fully settled with a cultivating community, often also breeding horses and cattle, and marketing the surplus produce and stock. The people are of a more mixed origin, and are not so simple in thought and customs as those of the higher slopes. In the alluvial plains, which, if well watered, are generally very fertile, we find commercial farming highly developed if there are adequate communications, and here, on the great highways, flourish the trades and the big towns. Down near to the sea, the rivers become an important means of transport, and many people gain their livelihood by the rivers and canals. On the sea coast we have the great ports, and a hardy race of fishermen who make fine sailors even on our great steamers. In a hundred ways such as this is the population sorted out, according as the physical characters of the country prescribe the principal means of livelihood of the people.

III. GEOGRAPHICO-ECONOMIC PRINCIPLES

1. Varying Distribution of Natural Resources and Cultivated Products.—Trade between distant localities exists because of the varying distribution of natural products over the earth's surface, and because the opportunities and customs of producing cultivated and manufactured commodities vary in distribution in the same way. Here it is only necessary to call attention to certain broad generalizations which can be made concerning this distribution, and from which we may forecast the natural tendency of economic development in any district. We know, for example, that both minerals and forest products occur mostly in mountainous and hilly country, whilst agriculture flourishes in the plains, and manufacture at geographically important points in the plains, in some places deter-

mined by water transport, in others by the meeting of great road or railway routes. Thus there must always arise a trade between the mountainous districts and the valley bottoms. Further, as climate changes according to latitude, both the natural vegetable and animal products, and the still more important commodities of cultivation must vary so much over any lengthy north and south trade route that a considerable trade must arise. Again we have desert regions in the arid zones of continents, in the interior and on the western coast, and a moist climate in the tropics and along the coastal strip; so there is interchange of products between the dry and moist areas. Again the sources of power are localized and determine the location of industries present and future, at points on exit routes from the coalfields, and in the belt where the mountains abut on the plains and hydro-electric power is cheapest.

2. Potential Resources.—In estimating the future economic possibilities of a territory with a view to drawing up a program for development works, it is obviously important to take account of its potential resources. There may be much waste land with a good soil perfectly capable of profitable cultivation if adequate communications and security of property be There may be great stretches of land established. which would become fertile if irrigated, and for which it can be shown that water can be provided; or a hilly region, now producing little or nothing, may be shown to be suitable for afforestation, fruit-growing, or for sheep-running. There are very few types of country except precipitous mountains and salt marshes. that cannot be devoted to some useful purpose, if water can be made available; the questions will bethe kinds and quantity of produce to be expected. the works needed to raise and market it, and the

density of population that will be supported, and whence its immigration is to be arranged.

3. Natural Trade Routes.—Merchants having to convey goods from place to place naturally choose the cheapest route. In former times this meant by water where it was available. By land it meant seeking the most conveniently accessible point on an accustomed line of travel-a caravan route or great through road. Such routes or roads became great channels of trade, because they had been chosen with a view to avoiding natural obstacles and risks from highway robbers and dacoits. The chief natural obstacles are mountains and rivers, marshes and thick belts of forest. Trade routes have tended always to converge on places where an obstacle is most easily passed, as for example on passes across mountain ranges, on fords of rivers, or on the head of a lake, estuary or marsh. and the transhipment stations from land to watercarriage, have from time immemorial been converging points of trade and have often grown into towns of considerable importance.

The building of railways has in most countries greatly altered the trade routes, particularly the minor ones—not so much the great routes. The latter have often been followed by the railways either on account of existing big towns, or because great natural obstacles affect a railway as much, or more than a road. Thus railways utilize passes over mountain ranges, and broad valleys through hilly country, just as much as roads; and easy bridging points on great rivers are often the same, or close to the old fords, or ferries. On the other hand it is true that communications are less and less controlled by physical features, as population increases. Very costly railway works can then be profitably undertaken, or are required for strategic purposes, as, for example, the three great Trans-Alpine railways, and

those climbing the sierras and the Andes in South

In planning the economic development of a territory the old and existing trade routes should be ascertained and due weight (though it may not be great weight) should be given to the following considerations: (1) certain market towns will have sprung up on the old land and water routes; and these should so far as possible be made junction points on the railways, or converging points of the important roads with the railway, so as to utilize existing marketing facilities and trade capital instead of more or less completely destroying them and having to build afresh elsewhere.² (2) The capital invested in the old land or water carrying trade will seek continued profitable use and may prove a serious competitor with the railway for the first few years of its existence unless some other profitable use be provided for it. This is best done by having new main roads made to converge from a distance on the proper points on the railway, so that existing vehicles and animals can find a profitable trade in feeding the railway with traffic instead of competing with it. Such new main roads will develope a traffic which may after ten or fifteen years justify the construction of a branch line. This principle has been much neglected in India. (3) It will be found, as a general rule, that railways can more profitably follow existing trade routes, than strike off across country, except as noted in the next section. They may, however, cut off corners.

4. Ocean Routes and through Land Routes.—The principles noted in the foregoing section are almost

1 See W. S. Barelay, Geography of S. American Railways; Geograph. Journ. Vol. XLIX (1917), p. 163.

² At the same time cases may occur in which it is desirable to build again owing to the insanitary and tumble-down condition of an old city. In this case I think it best that a new city should be planned and built on a site a mile or two removed from the existing city. When the traders and population have largely transferred themselves to the new city, the old one can be pulled down and rebuilt so far as appears desirable.

equally applicable, whatever the size or importance of the old trade route, or of the railway to be constructed. We must now see that trade routes must be graded in importance; that the more important a route is in length and in volume of traffic the more does its rocation have a determining effect upon the lesser trade loutes of the territories it traverses.

A close analogy might be drawn with a great river and its tributaries. The alignment of the great trade routes is determined by the principal physical features of a continent—its mountain chains and the passes across them, and its great rivers—and by the situation of the largest and safest harbors. The great traffic routes across any section of a continent may, therefore, be determined by physical features far beyond its boundaries. In considering transportation problems, it is necessary, therefore, first of all to consider the country as a whole, and then to take account of the existing and possible ports in their relation to the great ocean highways of the world. From these considerations it will be possible to map out the great through lines of land communication, which in these days mean the great trunk railway lines. The great trans-continental lines will follow the shortest or easiest routes for connecting the thickly populated areas of the continent, some divergence being caused, however, if political considerations so dictate. The trans-continental routes will generally terminate in ports; but this is because any railway line will always be constructed so as to be used for as many purposes as possible, and a share in the ocean-going traffic is valuable. The second class of through routes consists of those dictated by the situation of the great producing districts of the interior relatively to the most convenient and safe ports on the coastline. Four factors influence the growth of a port: (1) Its physical configuration being such as to

provide adequate accommodation and shelter for the largest vessels. (2) The extent to which it has been improved by moles, wharves, warehouses, etc. (3) The accessibility and productivity of the hinterland. (4) Its proximity to the great ocean highways, which are themselves determined by the configuration of the continents and by such works as the Suez and Panama Canals. All we are concerned with at the moment is the accessibility of a productive hinterland to its port. Granted that the other conditions are favorable to the growth of a port, a demand comes into existence for means of transport from long distances inland to this port. Usually there must be several main lines converging on a port, and the precise alignment of these will be determined by the location of the most productive districts and by the main physical features.

In Europe and North America the through lines of communication of both the above classes are fairly well developed; but in India, as in Australia and in most of South America, they are but very partially developed or even understood. Yet it will be possible by sufficient study to forecast the alignment of these great through roads; and to do so is highly important because of the close connection which the local communications of any district ought to have with any through routes near to or traversing the district, and because the branch lines and roads sometimes have to be constructed before the through line. The branch line railways and local through connecting lines, and feeder roads, should spread out over any geographical unit of territory branching away from the main through connection somewhat in the way that the veins of a leaf branch out from the mid-rib and cover the whole surface of the leaf with ever smaller and smaller veins.

Taking the special case of India, we may consider for a moment the alignment of some of the principal through routes. The trans-continental through routes are not at present developed, but their location may be inferred from certain well known geographical facts. and these I have indicated tentatively with the broken lines upon the outline map inserted overleaf. The principal route affecting India is the proposed southern Trans-Asiatic line connecting South China and India directly with Europe, by way of Karachi, the northern coastline of the Arabian Sea, through Bagdad and Constantinople. It was argued by Mr. G. S. A. Mathers in an article in this Journal, that this railway would be able to compete with sea-carriage for the larger part of the goods requiring to be transported from the inland parts of Southern China to Central and Western Europe. Except for goods to be consumed at near the coasts, sea-carriage has the disadvantage of involving a back-carriage by land. The route proposed by Mr. Mathers across India is through Saidva. (in Upper Assam), Gauhati, Katihar, Mokameh Ghat, Moghal Serai, Naini Junction near Allahabad, Katni, Bina, Kotah, Marwar, and Hyderabad (Sind) to Karachi. He proposes that the line should where necessary be constructed or converted to the Indian broad gauge from Saidya to Bagdad. On the outline map the route I have shown is, I think, a slight improvement on this proposed alignment. From Naini Junction the route follows the E. I. R. main line to Fatehpur near Cawnpore, whence an entirely new line, constructed by the most direct route westwards to Luni, would, I believe, produce a shorter route with better gradients.

Whilst the Shanghai-Bagdad line is undoubtedly the most important trans-continental railway likely Vol. I. Part 8. 1962 299.

to affect India, we may usefully recognize others which are sure to be constructed some-day. Moscow will probably first be connected with India by a line from Baku to Bushire joining up with the Karachi-Bagdad line, but a direct route from Moscow to Delhi through Kabul and Peshawar, and on by branches to Calcutta and China will some-day be required. It will also be necessary to link up Siberia, with its valuable arctic and temperate products, with India. It may safely be predicted that nowhere in the world is a greater northand-south trade possible. The physical obstacles to be overcome are enormous; nevertheless the building of a railway from the neighbourhood of Rawal Pindi northwards through or near Khogend to Omsk on the Trans-Siberian line must be regarded as future necessity. Another north and south line will be needed to connect Bengal with Central Siberia and Northern China. Presumably it will pass through the Chamba Valley and Lhassa with an easterly trend, and then one branch will bend northwards to Lake Baikal and the other continue to Peking. Yet another trans-continental route will run from Rangoon through Mandalay and on northwards to connect with the last mentioned line and the whole Chinese system of railways, and another from Calcutta though Dacca (by train ferry) and Rangoon to Singapore. A short voyage thence to Port Darwin gives an almost complete overland route from London to Australia.

The second class of through routes consists of those determined by ports. The pre-eminent ports are Bombay, Calcutta, Karachi, Colombo, Madras and Rangoon. It is on these that the railway systems have been made to converge; and we may take it that these ports have already grown to such importance, and that they fulfil the above named conditions to 1 See antea, p. 11, bottom.

such an extent, that they may be regarded as practically permanent. Although the railway systems already converge to a great extent upon the ports named, several of the ports, particularly Karachi and Colombo, are still incompletely served in this respect. Karachi needs broad gauge lines from the south-east (Ahmedabad); Colombo needs a broad gauge through rail connection with all parts of the Peninsula south of Trichinopoly by lines converging on Adam's Bridge. The importance of this lies in Colombo being directly upon one of the world's greatest highways; whereas all other Indian ports are removed therefrom and must create their own traffic.

5. Convergence on Trading Centres.—The fact that commodities frequently require to be handled at markets requires that traffic be made to converge upon places which are already market towns or are suitable to become such. Commodities can only be sold without handling at markets by means of a system of public grading or by an enlightened use of samples. Such commercial organization is very backward in India; and it would appear that local markets to which produce must be taken in bulk will continue to have their present importance for a century or two. Where market towns already exist, roads and local railways should be made to converge on them (see page 10); where none exist the alignment of roads and railways will follow the trend of the country towards the great traffic routes, the direction being determined by the nearest principal trading centre.

The trade emporia, as we may call these principal trading centres, require separate consideration and treatment. The great port towns are naturally such emporia; but there are also a few ancient inland trading centres which must be included in this category, as for example, Cawnpore, Ahmedabad and Amritsar. Every

such emporium, which has been a trading centre for generations past, has great prestige, and a kind of good-will arising purely from the long-established habits, of up-country dealers journeying thither to make their purchases and of petty merchants resorting there to dispose of raw produce. The credit facilities such a centre are also one of its most important an advantage to any district It is be put into the most direct communication possible with such an emporium, and consequently streams of traffic for a distance of at least 150 miles in every direction should be directed primarily upon This principle is by such a town. no means India, attended to because the immediate in railway owners interests of often apparently, even really, conflict with it. A main of railway owned or worked by a company, example, wants by its branches to direct traffic down the main line, ignoring the fact that it may thereby be providing an exceedingly roundabout route to the nearest emporium. Again, a native state or a district board will desire to keep a branch, which it has financed wholly or as much as possible within its borders, or to feed traffic to its principal town, ignoring the interests of the producers and consumers of its agricultural territory who would gain much by having the shortest connection with the nearest great emporium.

6. Political and Fiscal Barriers.—Customs duties are barriers against trade, which always seeks to avoid them. This is equally true whether the duty be on import or export, whether levied at ports or on internal trade, and whether protective in character or intended for revenue for purposes only. Consequently, in many countries, the alignment of railways has been modified, or made completely different to what it would otherwise have been, because the frontier of



To face page 16.

some state produced an artificial obstacle and limited the trade along what would otherwise have been the most profitable route. Arrangements can generally be made for through traffic to pass through in bond, so that it is not much interfered with. The greatest economic loss is caused by routes naturally suited for connecting populous regions in two contiguous political territories being rendered unremunerative by a customs barrier, with the result that most of the possible traffic never comes into existence, and such as does goes by existing but longer routes. Where the customs barrier exists as part of the main fiscal policy of the country, it is not likely to be modified with a view to developing any particular district. In India, however, there are many native states which impose import and export duties, which, except when very moderate, tend to retard the development of trade. Octroi levied by large municipalities may have a like effect. The only advantage of such artificial barriers is that they can often be removed or modified by negotiation and bargaining. Every case must be considered on its merits, and much ingenuity may usefully be employed in providing a quid pro quo for the loss of revenue by the state or municipality so as to enable the construction of a railway which is estimated to pay after abolition or modification of the duty.

In laying out railways near or approaching to the frontier of any large country it is usually necessary to take strategic requirements into consideration. Military dispositions must be considered first in the proposed alignments; but, whilst adequately meeting this need, many modifications or additions may be made for the commercial development of the district. It should be remembered that the methods of warfare are evolving so rapidly that the most 'up-to-date expert advice as to the strategic requirements is alone trustworthy.

IV. ECONOMIC PRINCIPLES

1. Mutual dependence of Industries and Commercial Agriculture.—In outlining a policy of economic development of any country or territory it is highly important to remember the interdependence of manufacturing industries and commercial farming. Neither can exist without the other. It is the surplus produce of agriculture beyond what the rural population needs for subsistence, which provides it with the purchasing power which, if wants be stimulated, creates a demand for the manufactured products, and thus calls factories into Secondly, it is the surplus produce of agriculture which provides, either in itself directly, or by exchange, the raw material of industry. The indispensiable links are good communications and organized markets. 1

Thus in planning roads and railways to provide an outlet for surplus agricultural produce from any district it should be remembered that a demand to import into that district manufactured products will be created, and the question of whether it is better to facilitate the growth of a new manufacturing centre, or to provide easy communication with an existing manufacturing town. must be considered. Owing to the external economies of the market being far more important in some industries than in others, no general answer to this question can be given. Every case has to be considered on its merits on the basis of the probable demand for, and present location of the sources of supply of, the principal kinds of manufactured goods, and the location of such sources of supply relatively to markets for the chief sorts of agricultural produce coming from the district.

2. Laws of Increasing and Diminishing Returns.—A very important economic principle is the distinction to be made between industries according as they

¹ For a full statement of the foregoing theory see the Author's paper published in the Report of the Eleventh Indian Industrial Conference, Bombay, December, 1915; Part II, Papers, pp. 53-65.

predominantly obey the law of diminishing returns or the law of increasing returns. Industries which obey the former are agriculture and all extractive industries such as mining, forestry, fisheries, etc. Any of these industries may become predominantly subject to the law of increasing returns at any particular place or time. but such an event could not be anticipated, and the only safe plan is to assume that the law of diminishing returns is predominant. In regard to the manufacturing industries the reverse is the case. It must generally be assumed that the law of increasing returns is predominant except when there is any particular reason for supposing the contrary. The result is that whilst we must assume agriculture and the extractive industries to be always tending to spread themselves as widely as possible over the country, the manufacturing industries tend to develop with increasing success at particular centres where they have gained a start. This is the reason for most of the apparently peculiar facts relating to the localization of modern industries, e.g., the fine cotton spinning industry in Lancashire, the brass bedstead industry in Birmingham and the jute industry in Calcutta.

In planning the economic development of any territory, therefore, it is most important that no rash attempts should be made to establish new centres of manufacturing industry. The balance of advantages is always likely to be on the side of an existing centre of manufacturing industry, so long as it is within a distance which is reasonable with regard to the freight rates of the kinds of goods there manufactured. Some special conditions, as in regard to supply of raw materials relatively to the directions of streams of trade. an exceptional convergence of through railway rontes, or specially cheap power, should be present to justify the anticipation that a given point will be Digitized by Google favorable for the development of certain manufacturing industries.

S. Investment of Capital—Waiting for return.—
From the point of view of economic theory, one essential feature of capital in every form in which it enters into commerce and industry, is that it enables a producer or consumer to wait for the enjoyment of the results of his labor. When a machine is constructed the owner thereof enjoys the fruits of his labor, or of the labor which he has purchased, throughout the number of years through which the machine remains in service. The machine may go out of service, either because it wears out, or because there is no longer a sufficient demand for the products which it is used in making.

Any great public work is similar in economic properties to a machine, except that generally speaking it cannot be moved and that it takes longer to construct. There is again a further difference, in that most engineering structures have a much longer duration of service than any machine, and, with the growth of population, they therefore continue for several decades to increase in earning capacity.

Just as a machine must yield from its use income sufficient for a depreciation fund being accumulated which will replace the capital sunk in purchasing the machine by the time it is worn out, so must the income derived by the community from the use of any public work be sufficient either to provide a sinking fund for replacing it when worn out or to provide annually for repairs a sum sufficient to keep all the parts of the work in a condition equal to new. Such an annual charge for maintenance must be a first charge on the net revenue gained from the work, and the balance of the income goes to pay the interest

¹ W. S. Jevons, Theory of Political Economy, 4th edition, pp. 226 et seq. Marshall, Principles of Economics, Book 2, chap. iv, sect. 8. Carver, Distribution of Wealth, p. 252.

on the capital cost. In the case of a large public work, however, whether it be an irrigation canal, a railway, or a hydro-electric power plant, the demand for its service is necessarily a matter of slow growth because no large population can exist in the district without its presence. During the early years of use of the work, therefore, the revenue, after providing for the annual maintenance charge, is not sufficient to pay the interest on the capital. The fact is that it cannot be expected to be so. In project estimates an irrigation canal is generally allowed ten years for the demand for water to increase sufficiently for the estimated return to be realized; in other words, the revenue estimate is made on the basis of ten years anticipated growth of demand. Railways built through sparsely populated districts may take even longer to develope an earning capacity equal to the average current rate of interest on their capital expenditure. In the same way a hydro-electric power station which does not happen to be located beside an existing town or industrial district must necessarily supply current at a loss for several years, whilst manufacturers are discovering the facilities which the locality offers, and are finding the necessary capital and erecting their factories. The return earned by public works of a non-competitive character tends constantly to grow, so that after some years the net earnings not only equal the interest on the original and any subsequent capital outlays, but tend to exceed it more and more every year owing to the normal growth of population and wealth of the community, and the consequent continually growing increase of demand for its services.

The point to which it is important that attention should be directed is that what I have outlined is the normal experience as regards the earnings of public works. It must be expected that during the first ten

or twelve years they will pass through a lean period during which the net receipts, after providing working expenses and maintenance, fall short of the interest. shortage will normally decrease from year year, though it may do so irregularly if demand depends on the seasons. Such a net loss of interest for several years is, therefore, to be regarded as a normal expense of economic development with large public works. amount of such loss year by year can often be estimated beforehand with a fair degree of accuracy, and the loss anticipated in the whole series of years must be added to the original capital cost and be taken into account in determining whether the net earnings will eventually be more than enough to pay the interest on the total capital cost. Moreover, as I shall show later, such loss of interest can properly be paid out of borrowed capital.

There remains, however, one further consideration. If the period of waiting, before the anticipated return can be expected to equal the interest charged, amounts to many years, the whole loss of interest may amount to a considerable sum, which a joint stock company, or a district board, or other local body, may not be financially capable of bearing. A company must anticipate being able to pay a fair dividend within four or five years or it will have difficulty in raising capital from the public, however good its ultimate prospects The inference is that it should be par excellence may be. the duty of Government to undertake those public works, the revenues of which are bound to take many years to mature. The credit of Government is better than the credit of any local or private body could possibly be. It can, therefore, provide this deficit without difficulty, if needs be by further borrowings. is in every way better able to wait for its returns than any other body; and hence waiting over long periods for returns should be a special part of its policy.

4. Depreciation of Capital Goods, and Maintenance of the Capital Fund intact.--Every kind of tool or machine tends to wear out with use, and every kind of building or other structure has a tendency to deteriorate, or even to disintegrate from the action of the weather and other natural forces. During the early years not much deterioration is observable; but it may increase rapidly at a later date. Expensive repairs become necessary; and if no reserve fund has been built up out of revenue it will be necessary to raise fresh capital in order to keep the machine or structure in useable condition. This would be very bad finance. Both from the economic and financial point of view it is essential clearly to recognize that the original capital fund should be maintained intact. The capital which was originally invested in machinery, works and buildings may be said to evest 1 itself during the whole life of the machines and structures, i.e., so long as they remain in useable condition. There are data accumulated by which it is possible to estimate approximately beforehand the probable life of every kind of machine, vehicle or building; and a sufficient annual charge to mount up to the original capital cost at compound interest by the end of its life must be debited as part of the cost of employment against the earnings of every kind of capital goods utilized for any kind of productive purposes or for direct enjoyment. It should be most clearly understood that failure to do this involves using up the original capital fund, and that a fictitiously high net revenue is obtained by making an insufficient annual charge for repairs and depreciation.

On the other hand, it is said that there are certain big engineering works requiring embankments, tunnels, massive stone dams, and the like, which are originally constructed in so solid and durable a manner that

¹ This term, first used by me in 1911, means precisely the same as uninvest (see Jevons, Theory of Pol. Econ., 4th ed.; pp. 231 and 284).

they may be expected to last in good working order for some hundreds of years, so that no depreciation reserve is needed. Instances are quoted of Roman aqueducts which, with slight repairs, are serviceable and in use at the present day. To this view it may be replied that, whilst the lengthy physical endurance of great masonry works is not to be denied, the rate of progress of modern civilization is such that it is doubtful whether any of such works would be found to be of sufficient utility a century hence to be worth maintaining in use. The invention of new engineering methods is likely to open up new ways of achieving the same results at a lower working cost. Whilst this cannot be confidently asserted, there is in it at least sufficient probability to make it unwise to assume that any kind of engineering work-road, railway, irrigation canal, or dock, will be worth maintaining in use or operation for more than a hundred This should be taken, I think, as the limit of the period in which capital is to be recovered out of revenue. In many cases, of course, the progress of invention will give to railways, and possibly to some irrigation canals, a much shorter life than this. electrical working of railways, particularly in mountainous countries, will so greatly decrease the cost of working that the existing steam lines may be scrapped after a life of only twenty or thirty years. Such an example is only a particular case of a general economic law—that of the evestment of capital from dying industries. This may take place directly or indirectly. In the first case the original owners of the capital recover it by instalments from revenue; and, foreseeing that a new mechanical means of producing the same service (e.g. the change from horse-drawn vehicles to motor cars) is gaining the field, the capital so recovered is re-invested in the new instrument instead of the old

one. There is thus a gradual transfer of the capital fund from one form of instrument to another. In most industries, however, this takes place in an involuntary manner. The decline of the demand for the goods produced means a lower price and a revenue so much reduced that the owner of the capital can find no margin beyond meeting his ordinary expenses. He consequently uses up his capital fund, whilst other persons to whose services the public demand has transferred itself are making big profits from which they can save and accumulate a new capital fund. The original owners lose their capital, but the total social capital is not reduced.

5. Loss of Interest during construction.—Attention must be drawn to a well-known economic fact, which however is often overlooked by promoters of large enterprizes, namely the loss of interest which arises capital lying idle in partly finished works during the period of construction. Taken at compound interest this may mount up to a much larger sum than might be anticipated; and it may well be that a more expensive method of construction which would complete the work in a much shorter time would be cheaper in the end. If definite estimates are available as to the cost of completing the work within different periods, it is possible easily to calculate which will be the cheaper in the long run. The rate of interest to be used in the calculation is the estimated net rate of return on the capital invested after the undertaking has reached maturity in its working, i.e., ten, fifteen or twenty years after the commencement of operations.

Two distinct classes of cases may be recognized, which, however, shade into one another in practice. The first class includes cases where only the capital

¹ The maintenance and transference of the total fund of social capital is very lucidly explained by J. B. Clark in his Distribution of Wealth (Macmillan Co., U.S.A, Chaps. IX, X and XVIII). The reader should also refer to Irving Fisher, Nature of Capital and Income.

expenditure sunk in the work in question itself is kept idle pending completion. The second class includes delay in completing the work in all cases where question also involves equal delay in realizing income from capital expenditure on connected works already completed, or capable of being speedily completed without extra cost for hastening the work. A good example of the first case would be a long tunnel being constructed so as to shorten the route and improve the gradient of an existing open line, assuming the approaches to the tunnel to cost very little in comparison with the tunnel itself. In this case the railway is working and yielding revenue all the time. and it is only the capital actually sunk in the tunnel itself which is idle. Let it be estimated that on completion the saving annually effected by use of the tunnel will be at least Rs. 80,000 per annum, i.e. 8 per cent on the minimum capital outlay. Also let it be estimated that by the slow method of construction. the time taken being 50 months, the cost will be Rs. 10,00,000; and that by the fast method, completing in 20 months, the cost will be Rs. 11.00.000. will also be assumed that the capital needed for construction of the tunnel is obtained by issuing debentures or cumulative preference shares at 6 per cent per annum; and this is assumed to accumulate at compound interest with monthly rests. The figures work out as follows:-

•	Slow method	Fast method
Time taken to complete	Months 50	Months 20
Capital Outlay (excluding	Rs.	Rs.
interest) Cost, including accumulated	10,00,000	11,00,000
interest to time of completion Net cost (30 months net	11,32,000	11,55,000
profits deducted)	11,82,000	11,28,250

It will be seen that the cost including accumulated interest up to the date of completion in each case is slightly greater by the faster method. To be correct. however, it is necessary to allow for the net profits earned during the thirty months of time which the fast method saves; and in calculating the net cost I have assumed that 6 per cent interest continues to be paid on the total cost Rs. 11,55,000, giving Rs. 69,300 per annum as interest charge. Then we have:-

Rs. $(80,000-69,300)\times(30\div12)=$ Rs. 26,750 as the saving which, deducted from Rs. 11,55,000, gives the net cost. It is obvious that in spite of the fast method costing 10 per cent more than the slow method, there is, with the other conditions assumed, a saving of Rs. 3,750 by adopting it.

In giving an example of the second class of cases I shall show that a capital cost increased by even 66 per cent or more may be in reality the cheapest if the rapid completion thereby secured enables other costly works already completed, or capable of earlier completion without additional expense, to come into operation; and this in spite of the fact that I shall take the rate of interest only at 4 per cent and, assume it to accumulate only by half-yearly rests. I shall also take the net earnings to be, when in full operation, but 6 per cent on Rs. 1,09,00,000, which is the total cost by the slow method of completion. Let the capital outlay on the works other than the tunnel in question be one crore (Rs. 1,00,00,000). The interest charge on this is 4 lakhs yearly. Let the estimated cost of the tunnel completed in 36 months be Rs. 9,00,000, and its cost if completed in 18 months Rs. 15,00,000. The following table gives the results of the calculations:—

	Slow method Months	Fast method Months
Time taken to complete	36	18
Co. 4-1 Outless	Rs.	Rs.
Capital Outlay	9,00,000	15,00,000
Cost, including accumulated interest to time of completion	9,46,218	15,80,200
Add 4 % per annum on total cost		•
of completed works for 1½ years	6,00,000	6,91,812
	15,46,218	22,22,012
Deduct net earnings for 1½ years	nil	9,81,000
Net cost of tunnel as part of scheme	15,46,218	12,41,012

It will be observed that the anticipated earnings are a very big factor in determining the net cost. A case might arise in which the estimate of net earnings was very vague, or unreliable; or again the net earnings might be estimated to exceed the interest charge by only very small amount, if anything. In both these hypothetical cases the proper comparison would be between the costs which include all interest accumulated prior to date of commencing operation; that is to say, in my second example, between Rs. 15,46,218 as the cost by the slow method with Rs. 15,30,200 as the cost by the fast method, although the accepted contractors' estimates (and other outlay) came to Rs. 9,00,000 and Rs. 15,00,000 respectively.

It might be objected that these examples are applicable to the finance of a public authority or government administration owning such a railway or other work (e.g. docks or tramways), but that when owned by a joint stock company a difference would be created

by the fact that the money is provided by share Even if there were not the usual provision that interest may be paid to shareholders out of capital during the period of construction, the ultimate result to the shareholders is exactly the same to a public authority. For one thing, their money when not locked up in works under construction should be earning for them 4 per cent interest on deposit with a banker, or in any easily saleable security. Consequently at least this rate of interest should be compounded as part of the cost of works in which capital lies idle pending completion. It is true that the adoption of the faster method would leave the company's block account bigger; but the company's shareholders would be more than repaid by the earlier dividends which they would secure. In reality, however, it would not be good finance to distribute the whole of the profits gained by completing a work rapidly by means of an increased capital outlay. Such part of these profits as would represent the normal rate of interest on the capital outlay during the period of time which has been saved should be deducted from revenue and credited to capital in reduction of the block account. This need not necessarily be done during the actual period of time during which earlier operation was secured by the enhancement of the rate of completion of the work: the amount may be calculated, and its deduction from revenue may be spread over a longer series of years, thus providing the earlier dividend, but at a correspondingly lower rate at the time and in succeeding years.

It may be useful to remark that in both the foregoing examples the figures of the different capital costs by the slow and fast methods of completion were purposely chosen so as to leave only a comparatively small margin of saving by adopting the

faster method. Consequently these examples serve to show the extent of the increased capital outlay which may under ordinary circumstances be remunerative by reducing loss of interest. Under other circumstances the figures may vary indefinitely, and each case will require separate calculation in accordance with the principles here set forth.

In addition to tunnels and bridges, and other essential parts of railways, we may note the following as a few more examples of the kinds of cases in which this principle needs to be kept in mind. irrigation canal system the building of the weir at the head works might take much longer than the construction of the canal itself and its distributaries, and increased expenditure to accelerate its completion might be justified. Again, a coal-mine cannot begin raising coal until a second shaft for ventilation and emergency exit purposes is completed; and a more costly method of sinking which saves time may prove highly remunerative. Suppose, again, that a new large factory has been entirely equipped, but that a vital part of the engine is found to be broken or defective, it will save money to obtain this in India, paying, if necessary, ten or twenty times the price which it would be necessary to pay to obtain it from Europe in the ordinary course after a lapse of two or three months.

The general principles dealt with in this section are strictly of a mathematical character, and the different cases could be calculated from suitable formulæ if all the data were given. It would be outside the scope of my present purpose, however, to go minutely into the subject here; and it will suffice if I give the following rule which may be useful to guide engineers and administrative officers engaged with large projects:—

Rule:—The value of additional speed in construction—that is to say, the ratio of percentage increase

of capital outlay to the percentage saving of time which is just remunerative—will be found to increase with the following conditions:—

- (1) the higher the rate of interest to be paid on borrowed capital.
- (2) the larger the total amount of capital kept lying idle in connected works relatively to the capital outlay on the work itself.
- (3) the greater the estimated earning capacity on maturity of the work as a whole, or of the series of works kept idle.

In public works where benefit of the population and indirect revenue due to increase of taxes are objects of policy, the earlier accrual of these forms of income is a factor which should be given its full weight. These considerable advantages which may be expected to result from every successful public work should not be omitted from account merely because of the difficulty of obtaining a numerically precise estimate of what they are likely to amount to. Even if these factors be given a very moderate estimate in terms of money income, it will be found often that their inclusion makes an important difference in the solution of the problem of the most economical speed of construction.

The principle I have explained of avoiding loss of interest by delay in carrying out a difficult part of any work may be expanded into a general theory of the correct timing of every operation connected with the expenditure of money on engineering works, and as a useful study for engineers I may recommend the graphic method of solving this problem described by G. L. Bennet in his article entitled "A method of determining the time of performance of work, with special application to grading", and published in *Engineering and Contracting*, May 13, 1914, pp. 555-7.

¹ See postea, Chap. IV §§, 11, 12, and Chap. V. § 3.

I am indebted to Fish's Engineering Economics¹ for this reference, and I would recommend engineers and others who may wish further authority for what I have written in this section to refer to pp. 40-3 of that book, which also contains many useful suggestions, formulæ and data for the solution of other engineering problems.

- 6. Speed of Transit.—Merchants usually seek the cheapest routes for despatching goods, except in the case of perishable commodities, when speed of transit may become the most valuable consideration. In the case of non-perishable goods the interest lost on capital locked up during transit is the only normal reason for seeking rapid conveyance; but this may become a considerable item to some merchants who can make 25, 50, or even 100 per cent per annum on their capital. The availability of rapid transit may be of vital importance in developing certain industries, i.e. fruit growing, dairying and sea-fisheries. But the fact that increased speed of transit of goods is of great benefit to almost all trades and industries is generally overlooked. A railway system which on the average takes a week to transport goods 200 miles will not develop industries to the same degree as if it were worked so as to take usually only 24 hours to transport goods 200 miles.
- 7. Marginal Productivity of Capital.—An idea of fundamental importance in economics is that known as marginal productivity. It is a principle of the utmost importance in practice in every kind of business undertaking; but in connection with public works it is very apt to be overlooked. In every undertaking many factors of production are combined which we may classify under five headings; land, labor, capital, management and enterprise. The owner or enterpriser

¹ McGraw-Hill Book Co., New York, 1915.

A manufacturer, e.g., considers what will be the value of the extra weekly output obtained by employing an additional workman, either with his existing machinery, or assuming an additional machine installed, in which case he must deduct the interest and depreciation on the machine. If the value of the weekly output of the workman is greater than the cost of employing him, which is mainly his wages, the manufacturer, if he knows his business, will employ him.

Exactly the same principle applies in the investment of capital. For example, a railway company has a large body of capital invested in its permanent way and rolling stock. Any additional capital expenditure is marginal as regards the undertaking as a whole. The advantage from the additional capital may arise either in reducing working expenditure, as in putting in a new siding, or in attracting additional traffic to the main line, as in putting on new well-furnished passenger coaches, or in building a branch line. Or again, an irrigation canal may have had its distributaries badly aligned and it may be shown that there would be economy, both in the pay of the staff and in saving wastage of water, by closing existing distributaries and making new ones. The saving might be estimated to amount to 10 per cent per annum upon the additional capital outlay required. This is the measure of the marginal productivity of capital in regard to this particular canal, and, if capital can be borrowed at four or five per cent, there will be a considerable profit from making the improvement. In every public work of a revenue-yielding character capital has a certain marginal productivity. Hence it should not be assumed, because investigation may have shown a few years ago that no more capital could be profitably expended, that that verdict still holds good. Re-investigation

from time to time will reveal numerous opportunities of profitably investing further capital.

8. Natural Monopolies to be controlled by the State.—Public works and what are usually called public utility undertakings, such as gas, electricity, and watersupply, telephones, tramways and so forth, have generally the nature of natural monopolies. This arises from three special features of such works-that they render their services directly to persons or property in actual contact with them, that they usually require much capital, and are immovable. In such cases competition is so exceedingly wasteful as to be almost impossible because the expense of duplicating the costly installation of wires, pipes, or tram lines, and so forth, is very great. A factory, on the other hand, produces goods which may be distributed over a wide region, and the consumers need have no physical contact with the capital instruments engaged in production. There is, therefore, valid ground for making a broad distinction between industries which are natural monopolies and those which competition may have free play without the capital and working expenditure being of inordinately great. As many public utility services present opportunities of considerable profit, or at least appear to their promoters to do so, it has been found in many cases in England and particularly in America that companies do actually compete with one another in the same area for the supply of transport facilities by railways or the supply of electric power and light. The effects of such competition sometimes appear to be beneficial. They are in fact beneficial to persons residing in the competitive area who get faster and better train services, low freight rates for goods, and cheap electricity. Further investigation would usually show that this result is achieved only partly by more economical management and mainly either at the Digitized by Google

expense of the shareholders who are getting small dividends, or else through a comparatively expensive or inefficient service being given to persons residing in the non-competitive area who in some cases are made to provide the bulk of any profit which the companies make. In India there has been no excessive competition for the supply of public utility installations; but with the growth of population and of extensive industrial areas, such as those of the Hooghly, of the Jharia coalfield, or of Bombay, the opportunities are greatly increasing. In the provision of railway facilities there are many cases in which competitive lines already exist; and several examples could be quoted of cases where an extension of, say, a metre gauge railway parallel with an existing broad gauge line would be highly profitable to the former although the broad gauge line is able to handle the whole of the traffic at present offering.

These considerations show that Government is right in reserving to itself the control of all public works and public utility services. Whether the State should itself own and work such services is an administrative question with which we are not concerned at this point. It is here important to observe only that the planning and control of the promotion of all such works and services should be actually in the hands of a central authority which must be some department of Government. The principle on which such control should be exercised is to avoid unnecessary waste of capital in installing the requisite plant, bearing in mind that great waste may occur, not only through competition but by lack of foresight in providing for the expansion of the future demand. The central authority will also regulate the rates to be charged by the monopolist for the services rendered, the object being to provide the service for the public at the lowest rate possible, compatible with yielding a

fair return upon the capital invested. This postulates an active, well-advised Government department employing many exerts; but this again is an administrative question which will be taken up later. It is only necessary to point out here that in so far as Government avails itself of private enterprise in getting public utilities provided, it should give every facility to promoters, firstly to ascertain the views of Government in regard to the services to be provided in any locality, and secondly to get their plans approved and all the necessary contracts arranged, rapidly. discourages and kills private enterprise more than long delays in getting official sanction to projects requiring large investments of capital. In the interests of the country at large every encouragement should be given to private enterprise under the control which I have indicated; and a policy should be adopted of reducing formalities to the minimum essential to control.

9. Changes of General Level of Prices and Wages.— A most important economic principle which is almost invariably overlooked in considering projects for public works is the recurrence of fluctuations in the general level of prices of nearly all commodities at the same time. The tendency of wages to a continuous rise is also usually overlooked.

The causes of the changes of the average level of prices cannot be fully discussed here. It is sufficient to observe that they fall into two groups: (1) cyclical or periodic fluctuations, and (2) a secular rise or fall. The cyclical variations occur in connection with the alternate periods of excited and depressed trade which usually vary from seven to eleven years in length. Rates of wages also fluctuate; but in this case the cyclical variations are less marked than in the prices of materials, and the continued secular increase over a long period is very important.

When large public works are to be undertaken it is of the utmost importance to make the best possible forecast of the future course of prices and wages rates during the period of construction. Big irrigation canal projects have been estimated in India and their commencement having been delayed some eight or ten years it has been found necessary to increase the estimate by nearly 15 per cent merely owing to the rise of prices and labor rates which took place in the meantime.

The only method of forecasting the future course of prices and wages is by inference from the experience of the past hundred years or more. To facilitate induction the yearly index numbers of prices and wages should be plotted for as many years back as figures are available. For the sake of illustration I have selected four series of figures: namely, prices and wages respectively in England, and in India. For English prices I have taken Layton's figures 1 compounded of the well known index numbers of Mr. Sauerbeck back to 1860, and those of the late Professor W. Stanley Jevons for the earlier years from 1782 to 1860, the two curves being recalculated so as to meet at this date, and so that the index number for 1900 is 100. As an example of a series of index numbers of wages in England, I have chosen those in the building trade compiled by of artisans Labor Department of the Board of Trade back to 1874, and before that date I have taken wages of artisans in the building trade of London.2 These index numbers of prices and wages in England will be found plotted in the diagram facing p. 40. For Indian prices I have selected the series of index numbers prepared by the Commercial Intelli-1 Introduction to the Study of Prices (Macmillan & Co.), p. 116.

² Sec A. L. Bowley, Wages in the United Kingdom in the 19th Century, (Cambridge University Press); pp. 81, et seq., and Chart opposite p. 90.

gence Department of the Government of India 1 from the prices of 39 articles. The Prices Enquiry Committee index numbers published in 1914 only extend through the period 1890-1912, but they cover a better range The Commercial Intelligence Department of articles. index number includes a very large proportion agricultural products which have risen less in price than most of the materials of construction. As the Prices Enquiry Committee index number represents the latter adequately it is not surprising that it rises more rapidly in recent years. Both series of figures are plotted in graphs in the diagram on page 41. cases the index numbers represent rupee prices-that is to say, they have not been modified to a gold basis in accordance with the fluctuation of sterling exchange.

Reliable statistics of wages in India are not accessible for a long series of years, and doubt has been thrown on the accuracy of some of the figures which have been collected by Government from a number of sources throughout the country since 1873, and which published in the annual report on Prices and Wages These being the only figures available, however, I have had no option but to use them; and there is the satisfaction of knowing that such error as they may contain probably leads to an understatement of the extent of the rise of wages; because wages have undoubtedly in the long run risen more often and by greater amounts, than they have fallen, and the tendency is merely to report the same as last year. Choosing 20 series of figures, 12 being for wages of skilled labour (chiefly carpenters, masons and mechanics) in various parts of India, and 8 series of figures for agricultural and unskilled industrial labour. I have

¹ See Variations in Indian Price Levels from 1861 to 1912; by the Department of Statistics (Calcutta: Superintendent of Government Printing, India).

² Vide Prices Enquiry Committee Report, Vol. I., Appendix G., p. 255.

calculated a series of index numbers as follows:-

Year	Index No.	Year	Index No.	Year	Index No.
1873	100	1888	116	1908	128
1874	99	1889	121	1904	125
1875	103	1890	121	1905	134
1876	107	1891	123	1906	138
1877	108	1892	120	1907	139
1878	104	1893	121	1908	160
1879	108	1894	121	1909	158
1880	110	1895	123	1910 ²	155
1881	109	189 6	122	1911	163
1882	109	1897	121	1912	163
1883	112	1898	125	1913	170
1884	113	1899	122	1914	178
1885	118	1900	132	1915	181
1886	114	1901	127	1916	185
1887	115	1902	124		

These index numbers of wages are also plotted in the diagram (p. 41) together with the graphs of Indian prices, and are distinguished by a broken line.

Inspection of the graph of prices in England (opposite next page) shows the following secular movements:—

Periods	Rising Prices Years	Falling Prices Years
1789 to 1809	20	
1809 to 1849		40
1850 to 1873	23	
1873 to 1896		28
1896 to 1917	21	
	64	63

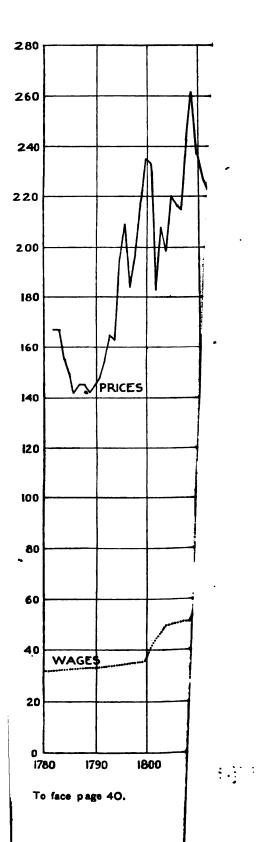
¹ With the assistance of Mr. Pritam Singh, Reader in Economics in the University of Allahabad.

² From 1873 to 1909 the following series of figures were taken from Prices and Wages in India:—Masons, carpenters, and blacksmiths at Amritsar, Rawalpindi, Alimedabad, Karachi, Bakarganj. Carpenters: Lahore; carpenters and masons-bricklayers, Brahmini Baitarni Div., Orissa canals. Skilled labor, E. I. R., Cawnpore, Delhi. Fitters, Lahore, N.W.R. Stone cutters, Orissa canals. Agricultural labor; Amritsar, Rawalpindi, Ahmedabad. Unskilled labor: Lahore, Cawnpore, Delhi; Orissa canals, B. B. and Mahanadi. From 1910 onwards those shown in italics in the foregoing list were discontinued, and the first five were substituted by postmen at Aligarh, Peshawar, Ahmedabad, Karachi and Bakarganj respectively. No substitution was made for the agricultural laborers, so that from 1910-12 the index number is the mean of 18 rates, from 1913-15 of 17 rates, and in 1916 of 12 rates.

Thus, in the whole period of 136 years for which index numbers are available there have been three periods of secular rise of prices and two of secular fall of prices, besides the initial years which cannot be classified. Without attempting to enter fully into the causes of these changes, it may be said that the progress of civilization seems to bring two opposing tendencies to bear upon prices, of which sometimes one and sometimes the other is preponderant. An expansion in the quantity of currency in circulation relatively to population is the normal accompaniment of increasing wealth; and this takes place not only in coin and paper money, but also in a far more important way in banker's credit. Going back 100 years in India, or 400 years in England, we find that prices of home made produce have roughly speaking trebled, and this must be due mainly to the great increase of the circulating medium. The other secular tendency is towards a constant reduction of price of all articles (one after the other, again and again) through the cheapening of the means of transport and the invention of far cheaper modes of production, and the abolition of customs barriers, monopolies, etc. But invention acts temporarily with the reverse effect, stimulating the demand for free capital and thus creating besides quickening the demand for materials and raising wages of employees, thus causing a more rapid circulation of existing currency. Great wars have an even more intense effect of the same kind.

The French Revolutionary wars and the subsequent Napoleonic wars were probably mainly responsible for the first secular rise (1789-1809). The withdrawal of inconvertible notes, and failure of many banks, were part of a general contraction of credit which was bound to follow the inflation, and initiated the secular fall, which was continued by the progress of communi-

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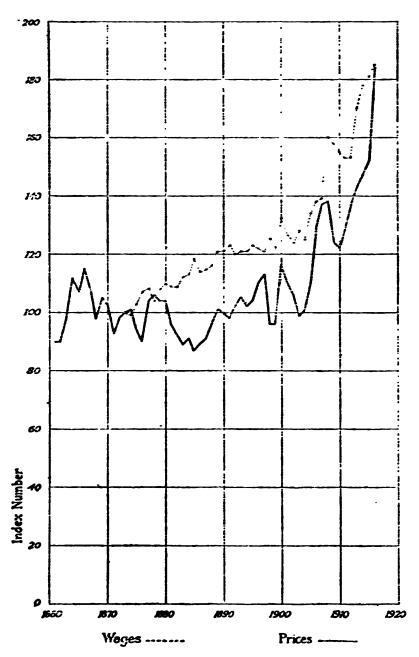


Fig. 1. Prices and Wages in India

(The index numbers of prices for 1913 to 1916 have been kindly supplied to me in advance of publication by the Director of Statistics for India.)

cations, adoption of free trade, the progress of invention, and the expansion of population and wealth together with a comparatively small gold production, thus restricting the growth of normal, i.e., non-belligerent, The rise from 1850 to 1873 is usually attributed to the discoveries of gold in California and Australia, to which were added the effects of the Crimean War and the wars of Prussia with Austria and France. great boom of 1873 may have been due partly to the re-establishment of European peace, but probably was caused mainly by world-wide bumper harvests in two succeeding years. The period of falling prices from 1873 to 1896 was probably partly due to the falling price of silver and the demand for gold for coinage thereby occasioned, partly to low gold production, and partly to a continuous tightening of credit by British banks after experience of crises, and the contraction of credit in America. The rise since 1896 appears to have been initiated and stimulated by the great output of gold from South Africa combined with the opening up of colonial countries, and the great expansion of credit in Continental Europe. A great series of inventions, such as the internal combustion engine leading to the motor car, and in all fields of electrical apparatus, has also continually stimulated demand.

10. Cyclical Fluctuations of Prices.—The cyclical fluctuations of prices clearly reveal themselves in the curve as steps or jagged teeth in the upward or downward secular movement of prices. They are irregular in length and clearly fall into two classes: minor, from 3 to 5 years duration (from maximum to maximum); and major, from 7 to 14 years duration. The minor cycles are not very important in their absolute effect on prices, and might be neglected were it not that it is important to notice that they appear to be submultiples of the longer cycles. I have elsewhere put

forward the hypothesis that the irregular periodic fluctuations of harvests which average about 31 years in duration are caused by like fluctuations in the weather and in the radiation of solar energy. It would seem that various economic factors controlling the trade cycle receive their impulse from the harvests. The curious coincidence of the average period of recurrence of commercial crises with the average period of sunspot maxima was noted long ago by my father.

For our present purpose however, it will be sufficient to note what were the years of maxima after which a sudden rapid fall of prices commenced. Going backward along the curve of prices we find they were as stated in the left hand column below, the interval being given in the right hand column:-

Date of Maximum	Years interval	Date of Maximum	Years interval
1907	7	1847	8
1900	10	1839	14
1890	10	1825	7
1880	7	1818	9
1873	9	1809	9
1864	7	1800	4
1857	10	1796	13
1847	10	17834	19

There is no index number of prices for the century preceding 1782; but the course of prices can be inferred fairly accurately from the total value of foreign trade. as may be seen by comparing prices and trade in the nineteenth century; and fortunately we have official

¹ The Sun's Heat and Trade Activity. London: P.S. King & Co. 1909.
2 Cf. A. Study of Industrial Fluctuation by D. H. Robertson (P. S. King) Chaps. VI and VII.

³ W. S. Jevons, Investigations in Currency and Finance, ed. 1884, pp. 194 et seq., being reprint of paper read at British Association in 1875.

⁴ The index numbers for 1782 and 1783 are equal, but the phenomena of the latter year were akin to those of other years of maximum immediately preceding a rapid fall.

returns extending back to 1700. The maximum of foreign trade does not always coincide exactly with the year of maximum prices; and two other sets of figures have enabled me to make the necessary verification or correction one way or the other. Back to 1731 I have used the statistics of bankruptcies adopting the rule that when prices are rising rapidly bankruptcies are low, and that the first year of higher bankruptcies after one or two low years is the year of maximum prices in which the turn came. Prior to 1745 I have made use of a series of figures giving the annual production of tin in the mines of Cornwall Devon as far back as 16672 and these figures give striking maxima of production sometimes in the same year a trade maximum, but more as often in the year following. This latter is exactly what we might expect, as the response duction to high price would not be rapid in those days, and the fall of price was not usually serious until the year following the highest price. We find the same thing in the nineteenth century in the output of coal, partly due to the long contract system, that a year of maximum output comes a year later than the year of maximum price. I have little hesitation, therefore, in giving the following list of years of maximum prices⁸; but should add that those prior to 1700 are based on the statistics of the production of tin only. supported, however, in the case of 1686 by the fact that a crisis began to develope in that year and in the case of 1696 by an index number calculated from

2 The Stannaries by, G.R. Lewis.

¹ W. S. Jevons, Investigation in Currency and Finance, edition of 1885, Chart at end of volume.

s These dates differ in some cases from the dates of "collapses" given by me in British Assoc. Rep., 1910, p. 683, but the collapse ordinarily came a year or so after the maximum.

after the maximum.

4 W. R. Scott. Constitution and Finance of English Joint Stock Companies to 1720. Vol. I, p. 464.

Houghton's valuable prices quoted by Thorold Rogers.1

Years of Maximum Prices	Interval in Years	Years of Maximum Prices	Interval in Years
1670 1677 1686 1696 1700 1710	7 9 10 4 10	1721 1782 1742 1758 1768 1770	11 10 11 10 7 18
1721	11	1783	10

Here again we find the recurrence of similar intervals: especially 7, 10 and 11 years.

The total number of trade cycles from 1670 to 1907 is 26, if the above dates be taken as correct; and the table below shows how they are distributed according to duration. The upper line shows the number of cycles respectively of each duration, that is of each length of interval from maximum to maximum, as shown in the lower line.

Although the total number of cycles is not large, it is highly improbable that these figures with three distinct maxima would arise from a chance distribution. Consequently the following deductions seem to be justified:—

(1) As there has been no four years' major cycle for more than a century, it is unlikely that in the near future a major cycle will be of less duration than seven years; (2) If a cycle has extended beyond seven years

¹ History of Agriculture and Prices. Vol. vi. The index numbers calculated from 15 commodities are: 1693, 100; 1694, 103; 1695, 105; 1696, 115; 1697, 114.

it will most likely be 9 or 10 years in duration¹; (3) but if it has extended beyond 10 years it will most probably extend to 13 or 14 years, the former being the more probable. There is also a small probability, say about 1 in 10, of a cycle being 11 years in length, through the prolongation of a ten year cycle, or of minor cycles so compounding as to produce it.

11. Forecast and policy in regard to prices and wages.—It is proverbially dangerous to prophesy; yet success in business and even in government depends very largely upon a correct anticipation of future events, through an estimation of present tendencies. It is solely with the object of illustrating how the generalizations relating to prices and wages may be utilized to obtain some intelligent forecast of their probable upward or downward trend that the following attempt is made at a forecast covering the next few years. With the lapse of time additional data will become available, and the forecast may be modified accordingly. But at the moment when the decision whether or not to enter into contracts for a large public work is imminent, it is highly important to make or obtain the best possible up-to-date forecast of this kind.

Owing to the constant enormous creation of credit by the belligerent countries and to the continuation of other causes resulting from the war, it would seem probable that prices will continue to rise rapidly so long as the war endures. Possibly in Europe there might be some fall, or a halt in the rise, as soon as decisive military events have brought peace negotiations within sight. It seems more probable, however, that the prices of metals, machinery and all construc-

¹ There appear to me to be indications, difficult to put in a few words, that the most probable duration of the present and future cycles will be 7, or 10, or 13 or 14 years, the last two figures being equally likely, but both much less ikely than 7 or 10 years which periods probably accord better with the modern period of gestation in the majority of industries when national economy is undisturbed by war.

tional materials will continue to rise in price, because the demand for these must remain enormous during the two or three years immediately following the conclusion of peace. Writing still of prices in Europe, it may be expected that when the trade boom due to the return of peace conditions has worked itself out there will commence a longish period of falling prices -a seculum of twenty years or more-broken only by the usual cyclical fluctuation. The curve of the index number of English prices in the periods following 1809 and 1873 will indicate broadly the character of the movement which seems probable. When the reconstruction and contraction of credit and the reorganization introducing economies in production have worked out their full effect it would seem probable that a secular rise of prices similar to that which began about 1896 may follow.

It is certain that there will continue to be cyclical fluctuations which will be superimposed on the secular trend, and will determine the exact year of the maximum or minimum resulting from a change of secular rise to fall and vice versa. To forecast these cyclical finctnations should be much easier than to foretell the duration of a secular movement. Referring back to the end of the section dealing with cyclical fluctuations (p. 44) it will be seen from the deductions there stated that if a cycle has extended beyond 10 years it will most probably extend to 13 or 14 years. The last vear in which a maximum occurred was 1907; consequently it would seem likely that the maximum following the conclusion of the war will occur in 1920 or 1921. The exact year must depend mainly on the date of termination of the war, and on the relative effects of Russian, American and Indian harvests, and those of the southern hemisphere. Should the war be prolonged until 1920, however, it is quite possible

that the next maximum of prices might not occur until 1924.

The foregoing remarks apply to English prices, which vary closely with the world's prices of the principal commodities. The special conditions of the war have broken for the time being that close coincidence between Indian prices and those of the world's markets which had gradually become established. Here prices have risen less than in Europe and America; but a permanent difference of level cannot be maintained, except by permanently altering the parity of the rupee and the sovereign. Assuming that the latter course be not adopted, the re-establishment of unrestricted trade after the war, and the gradual lowering of ocean freight rates, must tend to raise prices in India; so that here they may continue to rise, or at least remain nearly stationary, for 3 or 4 years after the maximum following the conclusion of the war has been passed in Europe and America. Hence, in the absence of any change in the parity of the rupee, it would seem impossible to expect any substantial fall of prices in India earlier than 1923 or 1924, at which time a secular fall may perhaps begin.

The future course of wages is perhaps easier to predict than that of prices. Inspection of the graphs reproduced on the charts opposite page 40 and on page 41, confirmed by inspecting numerous other curves of wages extending over long periods, shows that the normal tendency is for wages-rates to rise with rising prices, though not so fast, and to remain stationary or fall only slightly when prices are falling. Wages in many industries and wages of unskilled labor may even continue rising slowly when general prices are falling. There are two causes always acting: (1) the tendency of the money rate of wage to vary with the cost of living and thus with general prices, but in-

fluenced predominantly by food prices; (2) and the tendency of the progress of economic development to increase the demand for labor, and of the progress of civilization to create a higher standard of living and thus check the supply of labor and increase its efficiency at the same time, thus causing a higher money wage rate. Generally speaking, if trade customs are maintained, and education be reasonably directed, the skilled labor will become more efficient and thus very possibly no dearer in effect at a higher wage rate; but the effective cost of unskilled labor is almost certain to continue increasing in the future as it has done in the past with the development of trade and industries. The probable continued rise in the cost of unskilled and semi-skilled labor is a factor of the greatest importance in projecting future public works in India; and there are few economic predictions which can be made with a greater measure of certainty than this.

Coming now to consider the determination of the policy which should be followed as the result of whatever forecasts may be made as to the future course of prices and wages, it is necessary to state first of all that past events of recent date should have no influence on the decision in regard to future action, except in so far as the experience they afford may help to determine or influence the forecast. There are many public bodies which have found themselves seriously embarrassed by the cost of projected works substantially even whilst plans were under consideration, and there is a natural, but ofttimes indisposition to accept the new conditions as anything but exceptional or temporary. It is believed to be safest to wait and see whether the rise of prices and wages will not be followed by a fall. This course is adopted not because of any reasoned forecast; but because the public body is unable to make any such forecast and hesitates to "cut its loss". The correct policy obviously is to be continually making forecasts whilst works are projected, and to hasten or retard putting construction in hand solely on the indication of the best forecast available at the time. There might be justification in waiting for a better forecast, as, for instance, by waiting for the world's harvests of the year to be approximately known; but this is very different to a blind postponement in the hope of circumstances changing.

The policy in regard to time of commencement of works, and their several parts, in relation to prices and wages, will depend upon a differentiation between works requiring expenditure mainly on manufactured materials, especially such as are commonly imported, and works on which the expenditure is mainly for wages. As regards the former class the tendency of policy in a time of high prices like the present will be for postponement; but no decision should be made without taking into account the profitableness of the work either in direct revenue or in indirect benefit to the country.1 A work calculated to yield 40 per cent per annum on its capital cost at the old prices would still yield 17 per cent on its cost when prices of materials forming two-thirds of its total cost at the old prices had on the average trebled, and there would still be a very handsome margin above the The extent to which a rise of rate of interest. prices of materials should be allowed to check new works depends, therefore, on five things (1) the extent of the rise, (2) its probable duration, (3) the percentage of total cost which these materials represent, (4) the original percentage rate of direct revenue (or better, if possible, of the estimated social income) anticipated

¹ See ensuing section on p. 57.

to the original capital cost, (5) the current rate of interest for long investments. Should the rise of prices or of the rate of interest be proved by calculation to have made the work unprofitable, it would be well to investigate the possibilities of cheap temporary construction with the object of giving the service at once and replacing the temporary by a permanent work at a suitable conjunction of low prices and interest. In deciding when to make the replacement it would not be good policy to assume that the temporary structure must, to justify its cost, remain in use for a certain minimum life. The opportunity of putting in a permanent structure at lowest cost might thereby be lost. I am assuming a great difference of cost between the temporary and permanent structures; but if the former approaches anything like one-half the cost of the latter it will have to be allowed a minimum life.

Turning to the other case in which the expenditure on the work will be almost entirely in respect of labor and of material obtained locally, it may be observed that the chances are always in favor of delay meaning higher wages rates and increased cost; so that if the rate of interest is favorable for borrowing, or funds are in hand, construction may as well go forward as fast as the labor supply and engineering conditions permit. The continuance during the war of constructive work on the buildings of the new capital at Delhi is amply justified on this ground, as well as for the object of keeping the staff of skilled workmen together.

Finally it is necessary to inquire how the cyclical fluctuations of trade should influence the policy of time of commencement of works. When trade "sound" and active, and prices have begun steadily rising, it may be assumed that a boom of trade is approaching

in a year or two which will be followed by a collapse, when prices will fall. At such a time, then, when trade has become active, if contracts cannot be made at once it will probably be good policy to wait until the depression following the collapse. then be lower and wages at least the same, or but a trifle higher, whilst borrowing will almost certainly be made at a lower rate of interest. As far as possible public works requiring the purchase of much steel and other manufactured material can be best taken up during the period of depression. This secures lower prices for materials, and a lower rate of interest on the necessary loan; and it has the further advantage of regularizing the demand for labor, and thus lessening unemployment during periods of trade depression as was pointed out in the Minority Report of the Poor Law Commission.1

12. Definitions of Social Income, and other incomes.—In considering and adopting a policy of economic development the statesman as well as economist must have in view not merely the money revenues which will accrue to the State by the measures to be effected, but also the benefits, direct and indirect, which will accrue to the population. subject some clear thinking and careful On this definition is necessary; and to avoid misunderstanding I must ask the reader's close attention to the meaning of certain terms. We are to consider the whole income and expenditure of the community, which term I shall use to mean the whole population inhabiting a certain definite region, large or small. Whether this region corresponds with any political boundary or not is of no concern. In considering the different kinds of income enjoyed by such a community, I

¹ See Minority Report of Royal Commission on the Poor Laws, 1905-9; reprinted with Introduction by Sidney and Beatrice Webb: Part II. The Public Organisation of the Labor market, pp. 280-7 (Longmans, 1909).

shall proceed from the greater income to the lesserfrom the whole to successively smaller parts—by a process of elimination.

Firstly, we must recognise what must be called the total psychic income of a community, which means the sum total enjoyment day by day of all persons in the community, enjoyment being reckoned as positive or negative according to whether it takes the form of happiness, pleasure or satisfaction on the one hand, or of pain or discomfort arising from physical ailment or injury or from mental or bodily effort, or in any other way, on the other hand. measure of total psychic income No accurate possible; no true measure can even be conceived intensity of feeling between one person and another is at present completely incommensurable. Yet proportional changes in the positive or negative balance of feeling are conceivable, and by the adoption of the device of an index number as we do for averaging prices, which are also incommensurable. we may arrive at the idea of a relative increase or decrease of the total enjoyment of life by the community per unit of time, that is to say, rate of enjoyment. is this total psychic resultant of all the activities of life in a given community for which I use the term total psychic income.

We next come to what is in some ways for practical purposes an even more important conception because it is approximately measurable, namely social income. In discussing the economics of a political unit such as Great Britain, France or the United States, this is often called national income. It means the sum total of all individual incomes received by the the persons composing the community.2 The incomes

¹ Irving Fisher, Nature and Capital of Income, Chapter X. The whole book should be studied for a clear understanding of the various incomes.

2 See Marshall; Elements of the Economics of Industary, 3rd Ed., 1905; pp. 52-3 and 235.

in question must of course be net incomes, that is to say, what remains at the disposal of the individual after deducting any salary or wages paid for assistance, interest on loans, rent of land or houses, and so forth, for these constitute the incomes enjoyed by other persons. Many statistical estimates of national income have been made, and the financial and economic questions involved have been adequately discussed. 1

It is only necessary to add that here, in discussing the art of economic development, I prefer to use the term social income rather than national income, because the area under consideration will usually be that of some geographical unit or other district considerably less in area than the whole country within the national boundary.

We have next to define the meaning of the total revenue; a term which may be used as regards any unit of territory to denote the sum total of the following three classes of money receipts: (1) Civil revenues. i.e., total collections of Government and local authorities, from rents, taxes and fees (including land revenue); (2) Receipts of Government from its services-railways, canals, posts and telegraphs, forests, docks, etc; (3) the receipts of other owners public utility services which have the nature of public monopolies and which are established either under the control of, or with a concession from a governing body, or of which some share of the profits is paid to In both cases the whole receipts, and Government. not only the share paid to Government, are to becounted.

The above three divisions of the total revenue may be appropriately named from the special standpoint of the relation of the revenues or incomes to public

¹ See especially Irving Fisher, Nature And Capital of Income, Chapters IX and XIV; J. C. Stamp, British Income And Property, Chapter X.; L.G. Chiozza Money, Riches and Poverty, Chapter II.

works. Any revenue received by Government from such work on account of payments made pro rata for its services is called direct revenue, as for example the receipts of railways for goods carried or of irrigation canals for water supplied. Revenue arising under class (1) above, by increase of the total yield of rent, taxes and fees on account of the establishment of a railway, canal or other work in the district, may be called indirect revenue as regards that railway or canal.

The direct revenue, when regarded from the standpoint of a particular work is usually called the gross revenue (or gross receipts) of that undertaking. After deducting working expenses we have the net revenue, which represents interest on capital, and profits, if any. The balance remaining after deducting interest from net revenue is called net profits. The present practice of the Government of India is to strike an average each year of the rates of interest on all outstanding public debt, and to deduct this uniform rate from all works, Imperial and Provincial. Consequently the rate of interest charged varies slightly from year to year. In practice no difficulty has arisen; but in the strict theory of finance this is unsound, as will be explained later. 1

13. Relations of Various Incomes. — The mere definition of the various incomes which ought to be taken into account for scientifically practising the art of economic development is not sufficient. It is essential to have a clear idea of the relations of all these different incomes to one another. A full discussion of this subject would be quite outside the range of the present study and my observations will be confined to the minimum that is necessary to convey an understanding of the economics of public works. It should be stated that the classification and nomenclature of

¹ See postea Chapter x. § 5.

incomes which follows may differ in some respects from the practice of previous writers 1 and from what might seem best in a complete monograph on the theory of incomes. As the latter has not yet been written by anyone, I am forced to cover the ground just so far as is necessary for my immediate purpose; but, of course, I have been careful to avoid consciously making in my partial theory any statements which would be in conflict with the general theory of incomes when ultimately developed.

Total psychic income integrates the mental effect of all the activities of a community and it is the net balance of feeling resulting from the subtraction of an outgo (negative income) of unpleasant feeling (or dissatisfactions, including pain) from the income of pleasant feeling (satisfactions). Total psychic income must, of necessity, be greater than any other net income. for it includes them all. Total psychic income may be divided into two parts: (1) firstly all those satisfactions experienced by all persons composing the community, and decreases of dissatisfactions, which are purchased by expenditure of money or by giving goods in exchange, or by rendering services which are rewarded by payment in kind. Although the word purchase strictly relates to exchange with money only, I shall denominate as purchased psychic income all the psychic income which is bought with goods and services as well as with money. The total purchased psychic income is the psychic resultant of the social income; and as the latter is net already, the two correspond, except to the extent of the need of a small deduction from the former for any small balance of unpleasantness of the effort of purchasing.

(2) The other part of total psychic income is that which arises from all the experiences of life, all the

¹ e.g. Irving Fisher, Pigou, Pareto, and others.

contacts with environment, human and physical, which are not purchased, for which reason I shall call it total free psychic income.¹ This is more important on the human side—the contacts with wife and family in the home, with relatives, friends, and acquaintances, and the religious side; whilst purchased psychic income arises more from contacts with material things purchased recently or long ago, than from personal contacts purchased, as services of teacher, companion, etc. He is indeed a happy man or child who derives much free psychic income from contacts with things: the beauties of scenery and sunsets, the love of wild flowers, and of sports or games requiring no artificial aids.

Total social income may be divided for our present purpose into: (1) Total of private incomes arising through public channels. These will consist almost entirely of the salaries of persons employed Government, local authorities, and public utility companies, and of the interest on public debt of all kinds, and the dividends of such companies. The word income is here used not to mean the whole of a person's income from all sources, but the income from a definite source. Thus a person with a salary of Rs. 500 per mensem and receiving Rs. 35 half-yearly as interest on Government debt has two incomes in the sense in which I now use the word. (2) Total of private incomes arising from private enterprize of all kinds, including all professions, trades, industries and arts whatever, and from private property of all kinds, e.g. landed estates (zemindaris) and houseproperty, ships, etc. It is received by individuals in various forms: as fees, salaries, profits, interest, rent, hire, and wages, the last being the largest and an industrial country or district to amounting in

¹ The word "free" has here the meaning of "gratuitous", or better costless, if such a word were current in English to signify anything obtained free of cost.

about half of the total of private incomes arising from private enterprize.

In the foregoing paragraphs we have been classifying the incomes of all persons according to how they are earned, or accrue—that is to say, from another point of wiew, according to the nature of the payments made by the employing body, which may be Government, or a merchant or manufacturer, whether individual, partnership or limited company, or may be the farmer or cultivator who employs land and pays rent to a landlord, or the borrower of money who employs capital and pays interest. Doctors, lawyers and other professional men are to be regarded as employing themselves. The same money streams which make these payments may also be classified from the receipts side in a simple manner:—

- (1) All receipts of Government, local authorities, public trusts and public utility companies may be taken together and called *total revenue*, as defined in the preceding section (p. 54), and this may be subdivided into:—
 - (i) Civil revenue,
 - (ii) Direct revenue (gross receipts) of the commercial services,
 - (iii) Gross receipts of public utility service owners.
- (2) All receipts of private persons, firms and companies, corresponding with (2) of the foregoing paragraph (p. 57), which may be divided broadly into
 - (i) Professional fees,
 - (ii) Sales of manufactured goods, and all agricultural produce,
 - (iii) Gross profits of merchants, less railway freights, duties, taxes, etc.

In practice cross combinations occur, as when a manufacturing company receives interest or dividends on investments, or lets houses to its own work people; but these cases do not alter the principles.

It is unnecessary to carry any further the analysis of incomes resulting from private enterprize and ownership; but in the case of Government revenues a further subdivision is necessary and is in use. Taking the civil revenues first, we may notice that it has long been the practice in connection with the major irrigation works in India to distinguish the portion of increased land revenue which may be attributed to the supply of water as indirect revenue of those works. A similar distinction could be and ought to be made as regards railways, and other public works. Hence we may regard the civil revenue as divided into two parts—the primitive revenue, as I intend to call that part which would have been obtained in any case by taxation, fees and rents in the ordinary process of governing an undeveloped territory populated to the maximum possible in its undeveloped state, and the indirect revenue of public works. It is impossible to determine precisely the amount either of these revenues for a given district at a given time, for both grow with increase population; but they may be approximately estimated at the present, and their future growth can foretold with sufficient accuracy for the purpose of development programs.

The direct revenue, consists of the sum total of the gross receipts (or gross revenue, which is the same thing) of the commercial service operating each public work considered separately; and the following are the recognized subdivisions. Out of gross receipts a large part is required to pay working expenses. The balance is available to pay the interest on the capital outlay. Any further balance remaining is termed net profits. The cost of repairs to keep the works in thorough going order is included in working expenses, but it is not the practice of the

Government of India to show any deduction for a sinking fund after allowing for interest and before calculating net profits. In practice such a sinking fund is in existence, because a large part of the net profits which is taken into general revenue is subsequently allocated to capital expenditure on new works; but the amount is variable. Strictly speaking, therefore, direct revenue (and gross receipts) should be divided thus: (1) Working expenses, (2) Interest, (3) Sinking fund, (4) Net profits.

14. Economics of Education.—In a former contribution to this Journal, I considered the question what aims of human activities are to be accepted as the criterion of progress. The view there elaborated is, briefly, that the supreme criterion must be the happiness of the present and future generations—the interest of other peoples' happiness often outweighing one's own, and the desire to confer happiness on future generations often outweighing the desire to experience immediate enjoyment. All other commonly accepted ends-freedom. self-realization, and racial preservation—appear ultimately to resolve themselves into the greatest happiness of the greatest number, with the partial exception of the last, which involves also an ardent tribal desire to care for the happiness of the immediate descendants of the tribe or nation before that of other men-a universal and primitive instinct. Morality as a motive of actions may be analysed into various customs, rules (duty being a kind of rule) and laws, designed more or less unconsciously and clumsily to attain the greatest happiness of the community. 2

It follows that the aim of education should be two-fold: (1) To give every person with the least expense to

¹ The Relation of Economic Science to Social Progress, Indian Journal of Economics, Vol. I., pp. 181-218. See especially pp. 199 et seq.

² It may seem unsatisfactory to give here a series of dogmatic statements on what is still a highly controversial subject. Suffice it to say that I accept the doctrine of universalistic hedonism as defined by Sidgwick in his Methods of Ethics; and find myself in general agreement with his conclusions because, by constant observation, I have found that the facts of life, including the phenomena of the gradual re-adjustment of moral standards in recent years, entirely support them.

the community, and the least effort to himself, the means of achieving the greatest happiness for himself; (2) To secure that every person acts so as to secure the greatest happiness of other persons with whom he comes into contact, and of the community at large. The most economical policy, therefore, is to arrange such moral education as will teach every individual to gain his own greatest happiness by trying to promote the happiness of others. This should be one of the fundamental and primary aims of education from the child's earliest years. In the senior classes children should be taught the responsibility of the more wealthy to the poorer classes of society and of employers to their employees. Finally, the morality of international relationships should be outlined.

The particular objects of education must necessarily be numerous. In any course of teaching they require to be balanced: (a) to the capacity of the individual, (b) to his probable environment in adult life. Fortunately a certain amount of sorting out and grouping of children according to capacity and the most probable environment in later life actually takes place automatically through the residential localization of different classes of society following different occupations.

For the purpose of the development of the happiness of the individual the course of education should be devised to have two immediate objects: (1) to enable him to gain his livelihood with the greatest efficiency, (2) to give him the capacity fully to enjoy his leisure time.

Specified more particularly, the kinds of teaching necessary to promote the development by an individual of his own happiness, as indicated by the foregoing principles, are:—(1) Physical development, and the study of hygiene, which contribute directly to health and thus to happiness; (2) Training of the senses and power of perception, with two objects:—(a) to increase the person's ability for production, both as regards quality

and quantity, (b) to increase the power of sesthetic appreciation and thus directly increase enjoyment. (3) Development of reasoning power, and habits of reasoned thought; (4) Development of imagination and retention of curiosity; (5) Instruction in the art of learning—reading, writing and their advanced analogues: studying books and composition; (6) Instruction in religion and the fundamentals of life; (7) Imparting knowledge of matters of general interest—such as elementary mathematics, science, geography, history.

The teaching required to promote the person's desire to benefit other persons and the community, and the knowledge of how to do it, is almost entirely moral and civic. It is obvious that social benefit will accrue from giving this a very important place in the curriculum from the earliest stages. The production of the complex of qualities which we call character requires a course of instruction in the art of life which will run parallel with the moral course on conduct. This analysis of the objects of education shows that the customary education partially covers but two out ten desirable objects of education. In other words, present education covers about one-eighth of the desirable field.

Finally, in order to attain economic efficiency in education, it is necessary firstly, to have a clear perception of the objects aimed at, secondly to secure efficiency in the investment process—that is, proper training of teachers and a sufficient number and supply of books and equipment; thirdly, properly to adapt the teaching to the ends in view by employing expert investigators and advisers. There appears to be no known limit to the percentage rate of return of income to money outlay on education, so that provided the actual teaching be wisely directed to those aims which are socially most important, there need be no hesitation in making a great expenditure of money in fulfilling the second of the above conditions.

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OUTLINE OF REMAINING PARTS

It may be of interest to readers to give a brief outline of the contents of the remaining two or three articles with which it is intended to complete this series in forthcoming issues of this *Journal*. The following are the titles of chapters, and of the principal sections thereof, as now provisionally settled:—

V.—FINANCIAL PRINCIPLES

- 1. Importance of the study of finance
- 2. The three systems of finance
- 8. Taxable capacity
- 4. Distribution of burdens as between present and future— Periods of public debts

VI.—OBJECTS OF DEVELOPMENT

VII .- Social, Political and Legal Principles

- 1. Security essential
- 2. Evolution, natural tendencies and control
- 3. Land tenure system, stability and inertia
- 4. Mobility essential to true development—its place in social development

VIII.—ORDER OF DEVELOPMENT

- 1. Measures to be undertaken for development, and general principles of their scientific co-ordination
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IX.—PLANNING AND DESIGNING PUBLIC WORKS AND THEIR CO-ORDINATION TO SECURE MAXIMUM EFFICIENCY

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X.—FINANCE OF DEVELOPMENT MEASURES

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XI.—ADMINISTRATIVE CONTROL OF ECONOMIC DEVELOPMENT

Necessity for a co-ordinating authority—Preliminary investigations—Surveys of resources—Necessity for experiment and statistical record—Departmental reports—Provision of funds and control of execution.

THE

STUDY OF RURAL ECONOMICS IN SOUTH INDIA

PROFESSOR GILBERT SLATER, M.A. UNIVERSITY OF MADRAS

A new impulse was given to the study of economics in the Madras Presidency by the formation of the Madras Economic Association organised in 1912. inaugural address was given by Sir Theodore Morison on January 16, 1913, with His Excellency Lord Pentland in the chair. In that address occurs the following "H. E. Lord Pentland has already referred to the predominantly agricultural structure of society here, and my own perusal of the Census suggested to me a subject which may perhaps be dealt with in one of the learned papers of this society. It is a paper which has not yet been produced, but a paper which I want to read, a paper which I imagine this society or some society like the Royal Statistical Society in London may produce. I mean an account, sociological and statistical, of one typical Indian village. The author of the paper must take the most typical village he can, and then find out how many people live there, then he would analyse the way they made their living, what they did, how many were agriculturists, how many were tenants, how many were village servants, and how many engaged in industrial occupations. I hope he would also find what their incomes are. The estimate of incomes is a difficult task, I recognise."

There were other subjects which Sir Theodore Morison also suggested for special study, for example, the indigenous system of banking of Nattukottai Chetties, and Industrial Guilds. But it was the economic survey of typical Indian villages upon which he laid most stress, and it was in this direction that Madras Economic Association directed its first efforts. During the year 1913 Mr. C.D. Subramania Chetty and Mr. T. Krishnaswami Ayyar took up the work, and in the beginning of 1914 read papers to the Association containing economic surveys of the villages of Kolavur, Kizhaputhaneri, and Vanniyampakam. Although the original inspirer of this line of investigation in Madras was Sir Theodore Morison, a great deal of the credit of what has been accomplished is due to Sir Harold Stuart, who in the midst of his numerous and important duties found time to encourage actively the pursuit of exact economic knowledge.

Meanwhile another enquirer had been at work. Sir Theodore Morison's idea had also occurred to Dr. Harold Mann, Principal of the Agricultural College of the Bombay Presidency at Pocna, and he more fully than any one else carried out the enquiry which was suggested by Sir Theodore Morison. He carefully selected what he judged to be a typical village of the Bombay Deccan, Pimpla Soudagar. He secured the co-operation of eight assistants, and for a long period made an exhaustive survey with the object of ascertaining the exact economic condition of the village at the present time, its previous history, and the economic forces determining its probable future. Some of the facts collected in this inquiry formed the subject

of a paper read to the annual meeting of the Deccan Agricultural Association, which was published under the title "Economics of a Deccan Village" by the Izraelite Press, Poona. A fuller report has been published in the *Indian Journal of Economics*.

I came out as Professor of Indian Economics in the University of Madras in December 1915, and was fortunate in having an opportunity of meeting Dr. Mann on my way from Bombay to Madras. Like Sir Theodore Morison I had previously formed the opinion that in the study of Indian Economics the study of the village must take a very prominent place. I had to consider what resources were available for the University for assisting this work. In the University of Madras the study of economics is associated with that of History. It is subordinated to history in the examinations for degrees, and in the colleges of the University the teaching of Economics is mainly in the hands of professors appointed on the strength of their qualifications as historians. It appeared to me that in the first instance at any rate, I should have to appeal to students to take up the study of Indian Economics for its own sake, as something outside their work for a degree, and to utilise their vacations. It appeared to me that in every way the most desirable course practicable would be to ask students, if they were disposed to do so, to make an investigation of their native villages during the long vacation, and to draw up a series of questions to guide them in their enquiries.

The first step was to find out what questions to ask. In this I had the assistance of Mr. E. V. Sundaram Reddi, at that time a tutor in the Christian College, Madras. I went with Mr. Reddi to his native village of Eruvellipet in South Arcot, and spent four days endeavoring to see every possible

¹ Vol L, pp. 409 et seq. (December, 1916).

aspect of the village life. As a consequence I drew up a series of questions and sent the first copies to Mr. E. W. Legh, Collector of Salem, who succeeded in finding investigators to fill up the answers for one ryotwari and one zemindari village in the neighbourhood of Salem. I subsequently visited those villages myself and thus ascertained which of my questions were liable to be misunderstood. The Village Questionaire, as revised by the help of this experience, was given to students who expressed a desire to use it, and as a consequence some 14 surveys of villages in the South of India are in my hands.

These surveys are, of course, of very varying merit. The students who undertook them varied, naturally, in industry and ability; the villages themselves equally varied in the amount of difficulty they presented. On the West Coast there is no village in the proper sense of the word. There is instead an administrative district over the whole area of which habitations are scattered indiscriminately, though possibly they may be grouped a little more closely in the neighbourhood of a temple. Then some "villages" are small, others are, so far as population is concerned, country towns; and with the best effort in the world it is not possible for a young undergraduate student during his vacation to make a satisfactory economic survey of a "village" with a population of 20,000 souls. In such a case as this. however, one had the consolation of knowing that the effort of the student would in no way be wasted. He might, or he might not, gather some facts of value: he would certainly gain a better understanding of economic fact · than would be possible by a mere study of text-books and attendance at lectures. I may say here that the response which I received shows that the accusation sometimes made against students in Indian Universities that they take no interest in any

study for its own sake, but only for the sake of the examination marks which can be obtained by it, is considerably exaggerated so far as Madras students are concerned. When so much depends for an Indian student upon success in examinations it would be unfair to demand from him that he should seriously imperil his chances. Nevertheless, the genuine interest of students in economic studies and their readiness to pursue them when possible irrespective of the examination results is in my experience displayed to a most encouraging extent.

In the months of February and March I gave some public lectures in Madras which were well reported in the local press, and in which I village enquiries. This . emphasized the value of appeal also brought a response. I was invited Mr. A. J. Saunders, Lecturer in History and Economics in the American College, Madura, to visit that city; and by the organisers of the Kumbakonam Economic Club, and to deliver the inaugural address to that Association. In Madura I gave public lectures in the American College and in the Madura College; and Mr. Saunders and other students of economics in particular seized the opportunity of forming a Madura Economic Association, which some later opened its proceedings with an inaugural address from Professor K. V. Rangaswami Aiyangar of Trivandrum. Both the Madura Economic Association and the Kumbakonam Economic Club are endeavoring to arrange for village surveys more or less on my plan, and several such surveys have been carried out in the neighbourhood of Madura.

In the north of the Presidency Mr. A. P. Patro of Berhampur joined in the work, but proceeded on a different plan. His effort was in a given district to select what appeared to be a typical village, and in

the village to find a typical ryot. The choice of the ryot was made on a visit to the village after discussing the matter with the important men of the village. The ryot was induced to explain his circumstances to Mr. Patro, to give an account of his cultivation, his crops, his cultivation expenses, his subsidiary earnings, his expenses for food and other domestic purposes, the history of his family, and his conditions with regard to indebtedness, etc. The family budgets obtained by Mr. Patro were published in the "Hindu," and the "Indian Patriot," and he presented a selection of the budgets so obtained in a paper to the Madras Economic Association. Mr. Patro held that his inquiries proved certain definite and very serious conclusions. He held that it was demonstrated that the small ryotwari holdings in the Ganjam District did not, and could not, pay. The picture he presented was that of a congested district in which, by progressive sub-division of holdings, or by the increase in the number of members in an undivided family, the produce of the land was becoming insufficient to feed the cultivators adequately, and no alternative industrial occupation being offered on the spot, the only remedy available was emigration under very unsatisfactory conditions. Mr. Patro's data were challenged, and it was argued that different statements made to him by individual ryots were not always consistent with one another: that the figures of produce given were remarkably low and of cultivation costs remarkably high; and that the amount of rice and ragi asserted by the ryots to be necessary for food nourishment was very excessive. As a result of the discussion Mr. Patro expressed his intention of continuing his investigation and of modifying his method slightly by endeavoring to get budgets from several ryots, instead of one only, in each village studied.

The surveys of villages sent in by my students are now being prepared for publication. In anticipation of what I shall have to say hereafter I may say that one general conclusion that appears to me to be indicated is that the search for a typical village in Southern India, or in the Madras Presidency, is itself somewhat chimerical. No actual village can be typical in any complete sense; and in the partial sense in which it can be typical it is typical of one only out of numerous varieties. It was by the efforts of Sir Thomas Munro of the Madras Presidency that the extension of the permanent zemindari settlement outside Bengal was checked and ryotwari settlement introduced. Hence we have in the first place numerous zemindari villages scattered over the Presidency, in which on the whole the ryotwari prevails. Between two zemindari villages there will be the greatest variation in the relations between the zemindar and tenants. In one village I know the whole of the zemindar's income from the village is devoted to village improvement, to making roads, sinking wells. and planting trees. In another village the whole of the zemindar's income is spent in dissipation and vice. In one ryotwari village the pattadars let out all the land to tenants. In another practically all pattadars cultivate lands themselves, and between these two extremes all possible intermediate conditions can be found. Some villagers display much enterprise and readiness to adopt any promising agricultural innovation, others are intensely conservative; in some the principle of co-operation manifests itself, in others not. We have further ever varying conditions of soil and water-supply, with the consequent variations in the nature of crops produced. In some villages almost all the produce is consumed in the village itself; in others the land is mainly devoted to growing crops

for export. In a considerable minority weaving and other handicrafts play an important part in the economic life of the village; and among weaving villages there are those that produce very superior and expensive cloth, and those that produce only the coarsest; those in which hand-spinning has only recently died out, or even now lingers on, and those in which it is forgotten. Social and sanitary and educational conditions are equally variable. If it is possible to find typical villages, such discovery can only come as the result of a detailed study of a number of different villages. But that study is full of lively interest, and, I believe, of valuable instruction.

APPENDIX

SCHEME FOR SURVEY OF A RYOTWARI VILLAGE

General instruction.—Embody in your report the official information which is available, but endeavour also to test its accuracy and to correct it when possible. Throughout use some distinguishing mark to indicate whether your information is derived from official sources. Thus the letter 'O' can be used to mark official information, 'N' un-official, and 'N and O' official information, confirmed by non-official.

PRELIMINARY-

- (1) Survey number of village.
- (2) Name of village.
- (3) Taluk.
- (4) District.
- (5) General description of geographical position, and position in relation to any forests, rivers, hills, etc., which there may be in the neighbourhood.

A. POPULATION-

- (1) Total population of caste village.
- (2) Castes.

- (3) Number of families and individuals in each caste.
- (4) Number of children in families-
 - (a) living
 - (b) dead
- N.B.- A good way of getting this information is to ask parents how many children they have had and how many are still alive.
 - (5) Number of homesteads.
 - (6) A complete census of ages, if obtainable, is useful.
 - (7) Give statistics of the births and deaths given in the village accounts, and try to ascertain to what extent they are accurate; and if defective, why so?
 - (8) Population—men, women, and children—of Paracheri, given if possible in families, with number of dead in families.

Notes.—(a) Endeavour to give, if possible, the population according to the last two or more censuses.

- (b) Use the figures so obtained to ascertain whether the population is increasing or decreasing, and if so, which sections of the population (caste and sex) show the increase or decrease.
- (c) State the age you chose to distinguish between children and others. This should be 10 years or 15 years.

B. LAND-

- (1) Area of wet lands.
- (2) Area of dry lands.
- (3) Area of lands watered by wells.
- (4) Common waste.
- (5) Pasture other than common waste.
- (6) Woods and forests.
- (7) Fruit trees and scattered shade trees.
- (8) Tanks.
- (9) Wells.
- (10) Other sources of water supply.

Notes.—(a) The information under B can mostly be obtained from the village accounts, but some correction may be necessary. Procure if possible a copy of the village map. Add, if possible, a classification of wet, dry and well lands according to the amount of land assessment.

(b) The statistics under the several headings should be compared with similar statistics for a period anterior to the present by 10 or 15 years. The necessary information can be gathered either by enquiries in the village or from the Firka books of Revenue Inspectors. Such a comparison is important as showing the economic progress of the village and changes, if any, in the methods of cultivation, the standard of living of the people, in cattle rearing, etc.

C. OCCUPATION OF LAND-

- (1) Area cultivated by the landowner.
- (2) Area sublet and cultivated by tenants.

- (8) Number of cultivating landowners.
- (4) Number of non-cultivating landowners and their respective occupations.
- (5) Number of tenants who own no land.
- (6) Agricultural workers who neither own nor rent land.
- (7) Areas of holdings according to ownership.
- (8) Areas of holdings according to tenancy.
- (9) Rents in money or in kind.
- (10) Land Revenue—Give total kist of village and amount per acre for different qualities of land.
- (11) Particulars of people who combine agriculture with other occupations.

Notes.—(a) Give (7) and (8) in as much detail as possible.

(b) Under (9) give as full information as possible, both about the sorts of agreements that are concluded between the pattedar and the tenant, and also the amount of the rents, and what extras such as straw, vegetables, etc., are paid in addition to grain or cash rents. If landlord and tenant share the produce, explain how the kist and costs of cultivation are shared, and whether the tenant has all the straw, and endeavour to calculate the actual value of the share of produce obtained by either party. Again, landowners and cultivators usually pay the village servants certain perquisites at the time of harvest, Pongal feast, etc. These should also be noted.

D. AGRICULTURE-

- (1) Area under each of the principal crops.
- (2) Area yielding one crop per annum.
- (3) Area yielding two crops per annum.
- (4) Area yielding three crops per annum.

N.B.—Give these statistics for a short series of years.

- (5) Customary crop cultivation, of wet, dry and garden lands respectively.
- (6) Types of plough used, and the number of acres cultivated per plough in wet, dry and garden land respectively.
- (7) Other agricultural implements.
- (8) Describe types of pumps or waterlifts used (no elaborate description is needed if they are of common types). Are oil engines used?
- (9) Is water sold for irrigation by one villager to others? If so, what price is charged?
- (10) Stock.—(a) Working oxen.
 - (b) Cows.
 - (c) Male buffaloes.
 - (d) Cow buffaloes.
 - (e) Young stock of above species.

- (f) Horses.
- (g) Donkeys and mules.
- (h) Sheep.
- (i) Goats.
- (j) Pigs.
- (11) Are ploughs or carts and bulls hired out? If so, give rates of hire.
- (12) Describe the customs with regard to feeding of domestic animals.
- (13) Manuring ---
 - (a) What percentage of the cattle dung produced is used as manure?
 - (b) What quantity of cattle dung is applied per acre of wet, dry and garden land?
 - (c) How is cattle urine utilized?
 - (d) Other animal manures.
 - (e) Green manure.

Under this head explain whether green manure is grown, or obtained from woods or forests.

- (f) Are chemical manures used? If so, how obtained?
- (14) Garden cultivation.

Give here any information available not given under other heads.

- (15) Chief insect pests and methods of combating them.
- (16) Chief cattle diseases and methods of combating them.

Under heads (15) and (16) note particularly whether assistance is obtained from the Agricultural and Veterinary Departments.

- (17) How and where wood is obtained for fuel, implements, building, etc.?
- (18) What is the cost of cultivation per acre of wet, dry and garden land respectively?
- (19) Has there been any recent improvement in methods of cultivation, as single transplantation of paddy, seed selection of cotton, introduction of new crops, etc.? If so, how was such improvement brought about? Are the villagers disposed to adopt new methods if their utility can be demonstrated?
- (20) Do the villagers breed their own cattle, or purchase? If the former give as full an account as possible about their methods of breeding and rearing young cattle; if the latter state how the cattle are procured what breeds are preferred, where they come from, what prices are paid, and what becomes of the cattle afterwards.

E. THE VILLAGE.

- (1) Area of the village site.
- (2) Localization of castes.
- (3) Dwellings of depressed castes.
- (4) Types of dwellings, c.g. how many houses.
 - (a) in caste village.
 - (b) in paracheri.
- (5) Gardens adjoining dwellings.
- (6) Maximum distance of cultivated lands from home of cultivator.
- (7) Unsatisfied demand for building sites.
- (8) Site values.
- (9) Do the ryots exchange lands in order to get their lands continuous? If so, do they build and use field huts? To what extent are the lands of an average cultivator scattered about in small parcels?

F. SUBSIDIARY INDUSTRIES

- (1) Number of weavers.
- (2) Condition of the weaving craft:—What Yarn is used? What looms and winding implements? Do weavers co-operate at all? What evidence is there of growth or decay in the weaving industry? Give average earnings.
- (3) Is handspinning practised; if not when abandoned?
- (4) List of other crafts in the village giving when possible the proportion of working time spent on the craft, average earnings and any interesting features about the craft.
- (5) Give any information available showing whether any village industry is developing or increasing; or, on the other hand dying, decaying, or becoming less remunerative.

G. VILLAGE TRADE --

- (1) How do the villagers purchase commodities required?
 - (a) for industrial and agricultural use?
 - (b) for their own consumption?
- (2) Sale of village produce--
 - (a) Estimate the quantities of village produce sold out of the village.
 - (b) Describe the methods of sale.
- (3) Condition of village with regard to local roads, access to main roads, railways and commercial centres.

- (4) Extent of co-operation in village trading.
- (5) Further remarks.

Note.—Please make a special effort to get an accurate statement of the quantity of agricultural produce that is sent away from the village in an average year.

Also endeavour to ascertain if the poorer ryots sell grain at a low price immediately after harvest, and have to buy it back for their own food or for seed at a higher price later on.

Try also to find what proportion the price the ryot receives for his produce bears to the prices obtained in large markets.

H. ECONOMIC CONDITION OF VILLAGE-

- (1) Customary rates of wages—(a) in money, (b) in kind. Note what extra perquisites are given to the labourer in addition to his regular
- wage.
 - (2) Current prices of staple foods.
 - (3) Number of families which have made savings.
 - (4) Utilisation of savings-
 - (a) Agricultural or industrial capital.
 - (b) In Savings banks.
 - (c) On loans to neighbours.
 - (d) In jewellery.
 - (e) Other methods.
 - (5) Rural indebtedness.
 - (6) Number of padiyals and conditions of their service to creditors, stating amount of wages or allowances of grain, clothing, etc.
 - (7) Causes of indebtedness.
 - (8) Proportion of debtors who have liberated themselves from debt.
 - (9) Is there a co-operative credit society? If so, add a special appendix giving the fullest possible account of its origin, progress and prospects.
 - (10) Sources and extent of communal income, (i.e. income belonging to the village as a whole, and not to individual villagers).
 - (11) Expenditure of communal income.
 - (12) Administration and supervision of communal income.
 - (13) Give any particulars known about selling prices of land.
 - (14) Estimated annual expenditure on religious festivals.
 - (15) Estimated expenditure in recent years on new temples.
 - (16) To what extent is advantage taken of the Agricultural Loans Act, and the Land Improvement Loans Act?

NOTE.—The following statement will be found suggestive—"In villages interest is a most insidious poison and the damage it causes is generally not properly appreciated. It is only loans of large cash sums that are regulated by a fixed and

reasonable rate of interest such as 9, 12, or 15 per cent per annum. But a good deal of the borrowing in villages is done either in the shape of small sums of money or advances of food grain, seed grain and other commodities on credit, and it is the interest on these latter transactions that proves the most ruinous. If one stayed in a village in a district like South Arcot or Chingleput for a few days and made careful enquiries among the villagers, one will come across many cases in which ryots borrowed a single rupee for seed grain and bought eight Madras measures of seed with it on the understanding that at the harvest time i.e., about 6 months thereafter the creditor should be paid back the rupee plus three Madras measures of paddy, the money value of which at harvest time is generally four annas. In other words, they agreed to pay 25 per cent more for the use of the money for six months. This high rate of interest does not of course prevail all the year round, but six months of such interest are enough to break any ryot's back. Further, all purchases of articles on credit carry very high rates of interest besides giving room to the exercise of much fraud on the part of the lender. Correct and detailed information as regards the rates and forms of interest paid on the several kinds of loans would afford valuable help towards the suggestion of means to overcome the evils of indebtedness."

I. SANITARY CONDITION OF VILLAGE -

- (1) Prevalence of Malaria.
- (2) Do. Cholera.
- (3) Do. Plague.
- (4) Do. Tuberculosis.
- (5) Do. Small-pox.
- (6) Do. Other epidemic diseases.
- (7) Do. Other endemic diseases.
- (8) Estimated rate of infantile mortality.
- (9) Snake bites.
- (10) Medical assistance available.
- (11) Insanitary habits.
- (12) Prevalent customs with regard to--
 - (a) Infant marriage.
 - (b) Purdah.
- (13) Nature and quality of water supply for drinking and domestic purposes.
- (14) Do the villagers bathe and wash clothes in the same stream or tank as that used for drinking?

J. EDUCATION-

- (1) Number of schools.
- (2) School accommodation.
- (3) Educational character of schools.
- (4) Number of boys in attendance.
- (5) Do. girls do.
- (6) Average duration of school life.

- (7) Percentage of adults able to read the vernacular.
- (8) Do. to write the vernacular.
- (9) Do. to talk English.
- (10) Do. to read English.
- (11) Do. to write English.
- (12) Number of pundits or specially educated persons.
- (13) Are there any adults who have learnt to read, to write or to cipher who have lost such ability after leaving school?
- (14) Number of boys and girls who have proceeded to more advanced schools elsewhere.
- (15) How have their school expenses been defrayed?
- (16) Have boys from the village who have passed through secondary schools obtained satisfactory careers later on?
- (17) Have any gone to an Agricultural College?
- (18) Have any boys who have received a good education settled down in their own village? If so, how do they use their education?
- (19) How many books and of what character in the village?

K. VILLAGE ADMINISTRATION-

- (1) Panchayat.
- (2) Village Administration.
- (3) Sanitary Administration.
- (4) Police Administration.
- (5) Contact with higher authorities.
- (6) How much crime has there been in recent years?
- (7) Are any of the villagers engaged in litigation and if so, why? Are any in debt in consequence of litigation?
- (8) Are offences and civil disputes dealt with in the village without resort to the Courts?

L. HISTORY AND PROGRESS OF VILLAGE-

- (1) What evidence is there to show either economic deterioration or economic improvement in the past?
- (2) What opportunities does the village seem to have for economic improvement? Note specially the possibility of extending the area of irrigated lands. Could more wells be sunk with advantage? If so, why are they not sunk?

M. GENERAL-

If opportunity offers illustrate by giving a more detailed account of the occupations, income, expenditure and the general

condition of a few typical families. Add any information which appears to be interesting and significant not asked for in this form.

As for instance, information as to the decrease of land held by different castes, reasons why people buy land and why they sell it, the emigration from the village either to cities or to foreign countries, why the emigrants go and whether they return, what effect such movements have upon the economic, intellectual, and social life of the village; what new expenditure on luxuries or comforts is becoming customary; what other changes there are in the standard of living; and if there is any change in custom with respect to marriages or religious observances.

THE UNIVERSITY MILITANT

DEPARTMENT OF SOCIAL ECONOMICS

FIRST EXAMINATION PAPER FOR PROFESSORS OF ECONOMICS

(Books may be used freely. Time allowed: THREE MONTHS, or more if required)

EXAMINER, PROFESSOR PATRICK GEDDES OUTLOOK TOWER EDINBURGH DIRECTOR OF THE CIVIC EXHIBITION

T

- 1. The European tramp is observant and even reflective, and in India the blind beggar in the market place is often devoted to the meditative life. Taking leading thinkers of many schools of political economy—Smith, Malthus, Ricardo, St. Simon, Fourier, the two Mills, Marx, Jevons, the Austrians, Edgeworth, Walras, Stirner and Bakunin, as also the German socialists of the Chair, what can we find in their teaching which might not have been elaborated by individuals such as above suggested? Is not their excessive dominance by conceptions of money value, etc., etc., essentially akin to the reflections of the first of these especially?
- 2. Consider now the actively constructive peasant in Europe or in India. Realize him as devoted to

his fields and live stock, to his home with its small garden and fruit trees, to his fellow villagers and to his tradition of folk culture, artistic, poetic and religious. How would this simple thought-world of his be developed as an economic system, assuming him to become educated enough to construct this without losing his present efficiency or abandoning his ideals?

3. Suppose now that besides the peasant's eldest son, who succeeds him in his holding, he has others. The second son becomes a manufacturer, the third a money-lender, the fourth a state official, the fifth a lawyer, the sixth a soldier, and the seventh an artist. Granting that political economists have dealt, more or less exhaustively, with the first named five of these, you are asked to outline a corresponding economic treatment for the soldier and for the artist, indicating the previous literature on these subjects, if any. How do you explain these omissions, if, not on the hypothesis of question 1?

II

4. Economists have been increasingly introducing mathematical conceptions and graphic treatments, and with advantage, but why not correspondingly the conceptions of physics? Were not the Physiocrats struggling towards these? Jevons in his enquiries as to coal resources and solar crises, and now also endeavours like that of the American Commission on Resources, are evidences that the subject has once and again come up; but do we not need a realistic study of society in terms of the conservation of economic energies? If so, give an outline of this, with indication of the changes which such economy would produce upon current conceptions, e.g. of money-making, and of empires.

- 5. Every economic survey discusses Malthus, but why not also Darwin? Show that his doctrine, commonly thought restrictedly biological, is really and fundamentally the projection of current mechanical improvements, and their associated economic theories, of competition, etc., upon the evolution of the organic and human world. Can any exception be taken to this view, that Darwinism was and is the very flower of classic economic thought, applied to other fields?
- 6. Estimate the bearing of later biologists upon economic theory, e.g., Weismann, Kropotkin, Bergson. Returning to the psychological treatment of economics—how far can the traditional doctrine of hedonism be maintained in face of the criticisms of evolutionists, e.g. that progressive processes, from birth and teething onwards, are frequently painful, while those of disease, vice, and deterioration are frequently pleasurable, e.g. spes pthisica, drunkenness, opium-eating, etc.? Does not the introduction of a future element involve the replacement of the hedonist theory by a distinctly evolutionary one?
- 7. Give references to economists who have endeavoured to clear up the position of economics within the general field of sociology. Also compare the fields of sociology and biology, with their respective subsciences; so as to make the above position of economics still more clear, as by comparison with the economics of animal life and societies.
- 8. How can it be clearly explained to the student that economics is related to (a) Geography, (b) Anthropology, (c) Elementary Psychology, as of experience, pleasure and pain, etc., (d) to a deeper Psychology of Ideals—of Philosophy, Science and Religion, Doctrine and Symbol, of Imaginative and Creative Art? How far have recent economic schools encouraged (or discouraged) these?

TTT

- 9. Taking for granted the customary treatments of economic progress as having widened from local and regional production and markets to great industries and world markets, how far can you indicate possible changes of a converse nature, i.e., towards the renewal of regional developments, and the improvement of minor cities as well as great ones?
- 10. Given the labouring classes, and the existing contrast between their valuation by the religious and philosophical standards of the past and by the political standards of the Revolution, and their market value in the present, can you suggest any way by which the valuation of the labourer may be substantially improved upon evolutionary lines? Can any substantial improvement of conditions be imagined without this? If so, how?
- 11. Economists have usually assumed the value of "Education", in its customary forms of the "three R's", and later of "technical education", usually urban and mechanical, with the addition of (so-called) design. Some educationists however advocate the education of the "three H's" (heart, hand and head), giving rise and scope to expressive and creative arts accordingly, as even best calculated to evoke mechanical skill and wealth-producing efficiency. State the arguments against and for this latter view.
- 12. Indicate the significance of *Fruit-growing*(a) in old civilizations, (b) in present possibilities.
- 13. Recent anthropologists, as notably Frazer, have emphasized the co-relation of religion with agriculture and fertility, *i.e.*, with economics. Reverse this process, by indicating, say from rice, date, vine, and olive, the corresponding cultural developments. Indicate the corresponding future possibilities, *e.g.*, for banana and potato.

IV

- 14. Discuss the division of labour between the sexes, (a) in early societies and simple occupations, hunting, pastoral, agricultural, etc. Criticise in these connections Otis Mason's view of woman as inventor. Continue the estimate of the division of labour of the sexes in historic times—classical, medieval, renaissance; and for patricians, plebeians, slaves, etc. How far are such historic conditions traceable in modern times, and for good and evil?
- 15. Discuss the position of woman in the various machine industries and in Paleotechnic conditions generally. Thereafter estimate the changes in the economic activities, occupation, remuneration and status of women as influenced by the present war. How far may these afford indications towards reconstruction of their status, and, if possible, on more advanced (Eutechnic) lines than heretofore?
- man and woman is commonly generalized as towards production and consumption and saving respectively. Illustrate this by comparison of text-books recently produced by teachers of the London School of Economics, e.g. Professor Cannan's "Wealth" and Miss Atkinson and Mrs. Mactaggart's "Introduction to Economics." Systematise more clearly these essential economic perspectives of the sexes, and indicate how this bears on the claims and possibilities of women.
- 17. Has any economist as yet made an adequate study of material production and consumption analogous to those made by naturalists of secondary sexual characters? If not, supply this, and illustrate it by means of a myth of the *isolated couple* corresponding to that of the economic man.

18. Estimate, either from history or present observation, or both, the economic evils and disasters associated with the relations of the sexes. Consider with various colleagues, e.g. those concerned with psychology and ethics, with history and poetry, with gynecology, with morbid psychology and criminology also, the possibilities of mitigating these evils upon the economic plane, in interaction with those of the others. (In summary and development of the preceding five questions, they may, all and more, be sub-sumed under "Cherchez la femme.")

V

- 19. Finally; recalling the preceding series of questions, what is your general impression of the economic level of the proceedings of the current Industries Commission? That is, how far do its witnesses and its questioning of them encourage you to hope a really adequate treatment of Indian economic problems in the near future, or in what respect, if any, discourage you? If the latter, indicate what evidence you would propose to bring before them.
- 20. State also what you understand by the term "Social Finance", and what (if any) fresh applications of it you would recommend, in India or in Europe. Criticise those recently recommended by Charles Ferguson—"The Great News" (New York, 1916).

THE RELATION BETWEEN INTEREST AND DISCOUNT

D. A. BARKER, i.c.s.

In considering the causes which affect the rate of discount it is customary amongst business men lay undue stress upon the factors of supply, whereas, from the scientific point of view, the factors demand are of equal if not greater importance. It is, of course, true that imports and exports of gold, preparation for dividend payments, the release dividends and other similar factors do affect the rate of interest, but to a great extent the movements so caused are essentially temporary and theoretically unimportant. Assuming that exports and imports of gold in respect of a particular country are approximately equal over a given period and that banking and business habits in regard to reserves kept and forms of currency used remain unchanged during that period, the supply of money for discounting will remain also practically unchanged. In the absence of any great alteration in banking practice bankers as a body will keep a fairly definite proportion of cash to current accounts. In the absence of any marked changes in the supply of gold, then, the supply of cash, and therefore of current accounts, will be approximately

constant. And it is upon the sum total of current accounts that the supply of money for discounts chiefly depends.

Looking at the question from the point of view of demand, however, we see that the determining factors are of a less simple nature. The credit sold in the discount market is, so to speak, the floating capital of commerce, always available for transfer at a minimum of expense from one industry to another. It will be particularly in demand for sudden expansions of trade, and will be equally at a discount in times of sudden contraction. These factors are of a nature less evident and less capable of statistical verification than the factors of supply and have therefore attracted less attention than they deserve.

But if we look again beyond mere temporary fluctuations we shall find that on the whole and in the long run the rate of discount will vary with the rate of interest. The rate of interest again is determined by the opportunities for the investment of capital and the amount of capital already invested or being invested. Thus during the first decade of the present century there was a marked increase in the average rates of interest and of discount despite the vast outpouring of gold from the mines. If the factors usually regarded by business men as governing the rate of discount were alone considered no cause could be found for a rising rate of discount amidst floods of new gold. It may be argued theoretically that large additions to the gold supply of the world will necessarily enlarge the cash holdings of bankers and will thus enable them to give more loans, to increase current accounts and thus to reduce the rate of discount. It should not be overlooked, however, that, concurrently with an increase of cash and of current accounts will come a rise of prices which will

necessitate more (monetary) capital for all new enterprises and which may thus totally destroy the tendency to a decreased rate of discount. Similarly a decrease in the supply of gold will mean ceteris paribus a decrease in cash holdings, a rise in the rate of discount and eventually a fall of prices which will enable monetary capital to do more work and will thus tend to a fall in the rate of discount. But changes in the flow of gold exert only temporary impressions on the rate of discount, and cause it to fluctuate round a point which is determined by the rate of interest.

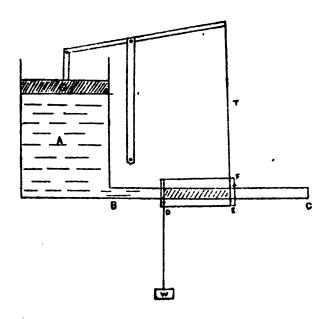
In the Economic Journal (of London) for October 1906 I described an hydraulic model illustrating various monetary phenomena. On that model the connection between the rate of interest and fresh supplies of gold was shown by a method which did not show sufficiently the influence of the rate of interest. I propose now to describe a model which shows this connection more correctly (see figure overleaf).

Let A be a cylinder closed at the bottom end and open at the top, except for a piston-head G, closely fitting into the cylinder, but able to move up and down. Into the cylinder A runs a pipe CB. DE is a cylinder concentric with the pipe CB, but so arranged that it can revolve freely round its axis. Inside the pipe CB, and attached to DE, is a turbine, so that when water passes from C to B it causes the cylinder DE to revolve in the direction EF. At another point on DE is attached the weight W in such a way as to tend to revolve DE in the opposite sense. To the piston-head G is attached

¹ This model is also described in the writer's Cash and Credit. Cambridge University Press.

² This string, as also the string T, is wound round the cylinder DE several times before being attached to it. Neither string, therefore, is fixed in length, as might appear from the diagram.

the arm of a lever, the other end of which is attached by a string T to the cylinder DE, so that a downward movement of the piston-head will tend to revolve DE in the direction EF. It will thus be seen that the pull of the weight W tends to pull the piston-head G upwards, whilst a downward movement of the piston-head will tend to pull the weight W upwards. Now suppose the cylinder A and



the pipe CB to be full of water. Let this water represent gold, and let the flow of water into A represent the import of gold. Then the height of the piston-head, or the level of water in A, will represent the level of prices, whilst the area of the end of A represents the volume of trade. The pull exerted by the weight W represents the rate of interest and the pull on the string T represents the rate of discount.

We thus see that an influx of gold into A will, other things being equal, raise the level of prices;

but such an influx may well be counteracted by a fattening of the cylinder, i.e., by an increase in the volume of trade. But what will be the effect of a flow of water through the pipe from C to B? Normally, when no other forces are at work, the twist exerted on DE by the weight W will be transmitted to the string T, so that the pull on both strings will be equal; i.e., the rate of discount will be equal to the rate of interest. But when water from C to B it will act on the turbine inside the pipe and exert a twist on DE in the direction EF, that is, it will help to bear the pull of W; or, in other words, the strain on T will be lessened, and the rate of discount lowered. When once the water has passed into A and the flow has ceased, G will be a little higher than before, and W a little lower, but the pull on T will once again be equal to the pull exerted by W. Translating into the language of the money-market we may say then, that while gold is flowing into a country the rate of discount will be thereby reduced. Once the flow of gold has stopped. however, the rate of discount will again become equal to the rate of interest, though the level of prices may have been permanently raised. Similarly when water flows out of the cylinder it will act on the turbine in such a way as to twist DE in the direction FE and will thus increase the tension on T. In other words gold flowing out of a country will temporarily tend to raise the rate of discount. But once the flow has ceased equilibrium between the rate of discount and the rate of interest will again be established:

HIGHER ECONOMICS COURSES I.—MADRAS UNIVERSITY

GILBERT SLATER, M.A., D.Sc. PROFESSOR OF INDIAN ECONOMICS, UNIVERSITY OF MADRAS

In the University of Madras the highest degree that at present is granted, that of M.A., is conferred after the lapse of a certain time without further examination to students who have taken their degree of B.A. in Honours. For the student of Economics the examination to be prepared for is that for B.Á. (Honours), Branch V, History and Economics. The syllabus for this examination was overhauled in 1915 by the Board of Studies in History and Economics.

The old syllabus was marked by extraordinarily wide options. Six subjects had to be taken, three from a group of eight, and three from a group of six. From the point of view of the organisation of economic studies the most striking feature in the Regulations was the fact that the highest degree of the University in Economics could be taken by a student who did not offer any Economics at all, and such a student was not invited to answer a single question either in Economic Theory, or Economic History, or any other branch of economics whatsoever.

The new regulations which were drawn up by the Board of Studies avoided such very large options. The

principle had been laid down by the Senate for the Board that some knowledge of Indian History should be compulsory. The Board held that certain other subjects, by parity of reasoning, should also be compulsory, and the regulations which they submitted to the Senate in March 1916 prescribed that the student must in future take (1) Indian History, (2) British Constitutional History, (3) Economics, (4) Political Science; and he has two options from a list of subjects of which Economic History is one but all the others are in general History and Political Science.

After a considerable debate, in which a proposal to refer the subject back to the Board for reconsideration was defeated by a narrow majority, the Senate approved of the alteration and forwarded it to the Government for confirmation. A protest was lodged by certain members of the Senate against confirmation, on the grounds (1) that the B.A. degree and Honours should allow of very detailed specialisation, (2) that the change was inconvenient to mofussil colleges, (3) that compulsory subjects required more time than optional subjects, and that therefore the increase the number of compulsory subjects made an increased and excessive demand upon the students. It was urged that it was impossible for students in three years to attain a high degree of competence in Politics, -Economics, Constitutional History, and Indian History.

I was dissatisfied with the new regulations, although they appeared to me to be on the whole an improvement on the old ones, and I seized an opportunity that presented itself of discussing the subject with members of the Government while the confirmation of the new regulations was pending. It was clear that there was a good deal of difficulty in securing any considerable advance in the organisation of the University for the furtherance of economic

studies in the immediate future. Economics had entered into the University curriculum as an addendum to History. The consequence was that throughout the colleges affiliated to the University the teaching of Economics was ordinarily assigned to teachers selected for their qualifications in History. Although there are some teachers who have devoted much time and thought to the subject, yet on the whole there is a tendency among teachers and students to regard Economics as a subject to be studied by diligent perusal of certain text books, among which Professor Marshall's occupies a very conspicuous position. Until recently there has been little recognition of the fact that economics is essentially a field study, which can no more be understood without scrutiny of economic fact than can Botany without looking at flowers.

One small amendment was secured at the November meeting of the Senate. It was decided that there should be an additional option of a special economic subject. A student therefore can to a certain extent specialise in Economics by selecting the options of special subjects in Economics and Economic History, and in this case, three out of the six papers are in Economics, other three being Indian History, English Constitutional History and Political Science; there also being an essay which ordinarily gives an option of an Economic subject among others.

There is a widespread desire in the South of India for a much larger development of University teaching in economics and for a fuller recognition of the subject in the University examinations. Among those, however, who are most closely concerned with the administration of the University, it is held that these developments must be postponed until the conclusion of peace removes the difficulty in the way of getting out additional teachers. A special committee was

appointed by the Syndicate in November 1916 to consider the situation and to draft proposals. The committee agreed on its report, and this was then submitted for consideration to the Board of Studies in History and Economics, which however did not meet early enough for the matter to come again before the Syndicate in time for the meeting of the Senate in March 1917. The scheme of the special committee is therefore not yet public; but it is hoped that as soon as sanctioned by the Senate it will do much to encourage Economic studies in the University of Madras.

II.-ALLAHABAD UNIVERSITY

PROFESSOR H. STANLEY JEVONS, M.A., B.Sc., F.S.S. UNIVERSITY OF ALLAHABAD

The Prospectus of the University of Allahabad for 1919, recently issued, sets forth the syllabus of the new M. A. Course in Economics which will come into force in that year. It is a great advance on the existing course and introduces some new principles; hence it will not be out of place to draw attention to it in this Journal. By way of introduction a brief description of the present course of study and examinations will be of service in order to emphasise the contrast.

The current Prospectus for 1918 contains a syllabus of the present M. A. course, which is substantially the same as for the past four years. It runs as follows:—

POLITICAL ECONOMY

There will be six papers. Candidates must offer themselves for examination in the subject-matter of any three of the following papers

at the Previous Examination and in that of the remaining three papers in the Final Examination:—

No. 1.—Theory, Scope and Method of Political Economy.

No. 2.—Socialism, Trades Unions, Factory System, Trusts, Co-operation.

No. 8.-Money, Foreign Exchanges, International Trade.

Nos. 4 and 5.--On Indian Economics.

No. 6. -- Essay on an Economic subject.

Students are recommended to visit, under competent guidance, a large mill driven by power, an engineering yard or workshop, also two villages, in the first of which a co-operative Credit Society exists, while in the second there is no such Society. The assessment statements of these villages must also be studied on the spot (copies of assessment statements can always be had at the office of the Collector of the district).

The first point to observe is that the choice is given of taking at the examination ending the first session of M. A. studies any three of the six papers. This practice, adopted to allow colleges to teach subjects in alternate years, is in itself exceedingly bad, for it means that the subject matter of each paper is studied without relation to that of other papers. For example, it would be possible for students to complete their studies on Indian Economics, or on International trade, before they began economic theory; although, whenever possible, colleges arrange to repeat the general course (Paper I) each session. Again, economic theory occupies too little of the students' time and attention; for in the examination only two-thirds of one paper is devoted to it out of six. Thus Indian economics is degraded descriptive study of existing economic mere conditions, assuming but little more knowledge of theory than is necessary to pass the B.A. Further criticisms which may justly be levelled at the existing the very important subjects of that are economic history and statistics are totally omitted, and that no sort of practical study, such as definite

inquiries in the field and exercises in the handling of statistics, are insisted on. It is true that the above recommendation to students to visit mills and works and two villages was inserted a year ago; but such practical studies ought to be done by B. A. students, and there is no test that the M. A. students do them.

The new course on the other hand has all the papers arranged in a consecutive order of study; it gives due prominence to economic theory, and it includes statistics in the second year's work. In order to give greater attention to economic theory and statistics, without reducing the importance of other sections of the subject, it was necessary to increase the total number of papers set to four instead of three in each year. They are thus set forth in the prospectus for 1919:—

ECONOMICS

For the Frevious Examination all students take the same course but for the Final they choose between courses A and B.

PREVIOUS M.A. EXAMINATION

There will be four papers:-

- Paper I.--Theory of Consumption and Exchange, Scope and Method of Economics.
- Paper II.—Theory of Production and Distribution, International Trade.
- Paper III.-Money, Banking, Foreign Exchanges.
- Paper IV.—Finance, Public and Joint Stock, Industrial Organization.

In each of the above papers the candidate will be expected to choose his illustrations and examples more often from Indian than from Foreign conditions, except when the facts to be illustrated are not known in India.

FINAL M.A. EXAMINATION

Course A-

Paper I.—Advanced Economic Theory (Wages, Population, Profits), including simple Diagrammatic and Mathematical treatment, and History of Economic Theories.

- Paper II—a. Social Economics, Labour Problems, Housing Reform, Standard of Living, Trade Unions.
 - b. Social and Commercial Theories, Laisser Faire, Socialism, Syndicalism, Free Trade, Protection, Imperial Preference.

Paper III.—Administration, Rural Economics and Industrial Organization in India.

Paper IV.—Essay.

Paper V.—Viva Voce Examination.

The above to be studied in relation to Indian as well as to European and American conditions.

Course B-

Paper I.—Advanced Economic Theory (Wages, Population, Profits), including simple Diagrammatic and Mathematical treatment, History of Economic Theories—(same as Paper I of Course A).

Paper II. -- Theory and Practice of Statistics.

Paper III.—Essay on Economic Theory.

Paper IV.—Special subject taken in detail, e.g., Irrigation or Coal

Trade, or Cotton, or Rents. The subject to be
specified by the University Professor of Economics
twelve months before the date of the examination.

Paper V.-Viva Voce Examination.

Note-books of Practical work, and four essays done during the session to be shown up and passed by examiners with a certificate of the University Professor that to the best of his knowledge the essays are the candidate's own work.

It will be observed that there are two alternative courses for the Final Examination. Course A has been devised with the object of teaching being given in the affiliated colleges under the University upon much the same lines as at present. On the other hand, Course B is so arranged that it will be possible only for students to take it who study in the Economics Department of the University, where it is intended to start special courses of lectures, and a course of practical work in statistics, beginning with the Session 1919-20. The great advantages of the teaching and examination being closely co-ordinated will thus be realised for this particular course.

It cannot be claimed for the revised courses for the M.A. Economics that they are by any means perfect; they are, like many other things, the result of a compromise. The ideal would have been to re-arrange the entire course in both years completely on the lines now adopted for Course B, that is to say, insisting in all students' working in the Department under the University Professor, doing practical enquiries, and learning to handle statistics from the beginning of their studies. All students for the M.A. would thus have come under the system of an examination co-ordinated with the teaching, and would have attained a knowledge of the value of books by having learnt how to handle the facts and realities which lie behind It is very useful, however, to have these principles recognised in the new course, and it would hardly be possible with the existing organisation of the University to obtain any greater advance at the present time.

A further striking change in the Prospectus is the abolition of the list of books recommended for study in connection with each paper, on the ground that students of M.A. standing should not be dependent on particular text-books. In place of the recommended books the Board of Studies have prepared, and printed in the University Prospectus for 1919¹, a classified list of more than one hundred books regarded by them as standard works, which the M.A. student ought to consult and to read so far as may in his judgment be necessary and his time permits. The list will be revised from time to time, and it may be taken as the nucleus of a library of books on economics. Certainly these books ought to be in the Library of every College affiliated to the University in economics up to the M.A. Standard.

¹ To be obtained from the Pioneer Press, Allahabed; price As. 7 by V.P.P.

Working for the M.A. degree in economics has not usually been regarded by students as a whole time occupation. Some have read for law at the same time or for another M.A. subject such as History or English. With the new course of 1919 this will hardly be possible; for the standard will be considerably higher. On the other hand the students who obtain the M.A. degree will no longer be so poorly equipped in knowledge of economics as they are now. Two years of thorough study will give them a grasp of the subject, and a confidence in their understanding of it, now hardly ever attained.

CURRENT NOTES

Nearly nine months having elapsed since the last Current Notes were written, we have the opportunity of reviewing what has proved to be a striking period in the history of the finance and currency of India. The outstanding features are the success of the War Loan; growth of military expenditure on account of the British Government; an enormous absorption of silver by the population at large; the startling rise of the price of silver, leading to the raising of exchange to 1s. 5d.—a figure which has not been touched for the quarter of a century—and to the Ordinances whereby Government compulsorily acquires all imports of gold or silver; and finally the issue of the one rupee notes on December 1st, 1917, the increase of which is already assured.

As a result of energetic canvassing for the War Loan, and of special provident fund schemes and sweep-stakes in addition to the ordinary investment, the subscriptions to the War Loan amounted to 38 crores on 81st July. The Post Office section received subscriptions which by 10th October amounted to

Rs. 3,92,33,250. The subscription to the Post Office section and Cash Certificates has continued open and the total figures of subscription from the commencement up to early in October are as follows:—

	Rs.
Main Section	88,86,87,100
Treasury Bills received in England	1,65,61,200
Post Office Section	3,92,33,250
Cash Certificates	8,13,20,195
Total	52,07,51,745

The rapid rise in the price of silver lately has created a good deal of alarm and misgiving in the minds of the illiterate. The Ordinance of the Indian Government requisitioning silver landed in India at 5 per cent below the price of bar-silver in London was probably a contributory cause to the speculation which developed in the silver market; and the price jumped up from 40 d to 42 d, to 44 d and to 55 d per oz in September. The present price (December) is over 43d per oz., and it does not seem likely to go back to its old level. In order to keep currency on a sound basis the Government of India has acted wisely in prohibiting private trade in gold and silver. The exchange rate of 1s.5d. may become a semipermanent feature of the Indian currency system; but the rate may even go up to 1s. 6d. or above it if war continues much longer.

We regret having to record the untimely death of another Professor of Economics, Mr. J. E. Gately of Lahore Government College, who was wounded on 7th June, 1917 and died of his wounds on 13th June

1917. The late Professor Gately was a graduate of Liverpool University, where he took a first class in the Honors School of Economics. He was Professor of Economics for sometime at Agra College, before entering the Indian Educational Service to take up a similar post in the Government College, Lahore, which he joined on the 3rd of January 1912. He joined the Indian Army Reserve of Officers on 15th February 1915, and was sent to the 25th Cavalry. After sometime he left with horses for France and was placed in charge of a camp at Marseilles. He was then transferred northwards to Rouen, and later joined the Machine Gun Corps, where he was in command of a section when he was wounded. His loos is grately fealth both by his students and his colleagues on the staff, as well as by his friends outside the college. A memorial meeting was held in the Government College on the 11th of October, 1917, and it was resolved to raise subscriptions for a portrait of the deceased to be placed in the College Hall.

The Tenth Conference of the Board of Agriculture for India has just been held at Poona from December 10th to 15th, 1917. The Board consists of all senior officers of the Agricultural Departments of the Government of India and of the various Provinces; and such conferences are usually held every alternate year. Non-official persons having special knowledge of the subjects to be discussed are usually invited to be present as visitors, and it is gratifying that the experiment made the first time this year of inviting economists to be present was pronounced by the Chairman, Mr. J. MacKenna, I. C. S., C. I. E., Agricultural Adviser to the Government of India, to have been a success. The first subject to be discussed was the un-

economic size and distribution of holdings of agricultural land in many parts of India. The Hon'ble Mr. G. F. Keatinge, dealt with the minute subdivision of holdings in the Bombay Presidency which has resulted from the Hindu and Mohamedan laws of inheritance. The next paper, by Professor Jevons, was on "The Consolidation of Agricultural Holdings in the United Provinces". This paper will be published as a Bulletin of the Economics Department of the University of Allahabad. Another subject of interest to economists discussed at the Conference was the question of the adulteration of agricultural produce exported from India and how to check it.

We are glad to notice that a Conference of Economists will be held in Calcutta under the auspices of the Bengal Economic Association on the 3rd of January, This Conference is the first of its kind, and this opportunity of interchanging opinions will be useful for those interested in the study of economics. program is arranged to cover two days, of which the first will be devoted to papers on the industrial development of India, and the second to papers dealing with the appreciation of silver and the Indian currency problem, and a few miscellaneous subjects. On the first day no less than three papers, by Professors Stanley Jevons, J. C. Kydd, and E. A. Horne, will deal with the Labor Question as affecting industrial development in this country, whilst Professor Gilbert Slater will deal with "Industrial Development in South India"; Professor A. J. Saunders with "The Economic Development of a South Indian Village"; and Professor A. R. Burnett-"The Future of the Cotton Industry." Hurst with It is to be hoped that a similar conference will in future be held each year in a different centre.

REVIEWS OF BOOKS

RELATING TO INDIA

The Economic Life of a Bengal District. A Study by J. C. JACK, I.C.S. Oxford: Clarendon Press. pp. 158. Price 7s. 6d. net.

It is a commonplace remark to make that economic conditions vary widely from district to district in India, yet the number of studies confined to a district, the purpose of which "is to explain how the people live, to analyse their income and expenditure, and to examine the burden of taxation and indebtedness which they bear" is remarkably small. It is refreshing to read a book on Indian economic conditions which does not lose point and life in the hazy economic generalizations of an Empire.

Mr. Jack was settlement officer in Faridpur from 1906 to 1910 where he had ample opportunity of making the investigations, and it is the economist's good fortune that he made good use of his opportunities. The book was written in 1915 on the eve of his taking up duties as an "The staff by which the recordofficer in the artillery. of-rights was prepared in the district of Faridpur, consisting almost entirely of young and eager graduates of the universities, was well fitted to supplement its task by such economic investigations. Each of these young graduates spent several months at one spot in the course of duties which engaged him in enquiries into the holdings of all the cultivators, into the capability of the soil and into the relations of tenants, both legal and customary, with their landlords. He obtained a vast amount of information concerning all the families of the village and frequently saw all the villagers and made visits to their homesteads." It

was through such a competent staff that the material was collected. The staff was supplied with forms to be filled up and with careful instructions concerning the method of conducting their investigations (see Appendix).

The first chapter is concerned with a description of the district and its inhabitants. It shows that Mr. Jack's knowledge of the people was both deep and sympathetic, and he has written interestingly on this subject. I shall give a few quotations.

"Faridpur itself contains an area of 2,464 square miles and a population of 2,121,914 persons. It is therefore as large as Devon and contains more people than any English county except Lancashire and Yorkshire . . . the population is almost entirely rural . . . the true urban population is not more than 20,000. There are no industries, so that the entire population, with insignificant exceptions, is dependent directly or indirectly, upon the produce of the soil for its livelihood: yet the population is nine hundred to the square mile, far heavier than in any agricultural tract of Europe and almost as heavy as in any industrial tract of the same size." It is heavier still in some of the adjoining districts of Bengal. The district divides naturally into three parts; the north where the land is above the flood level and is already formed; the south east which is still in process of formation, being built up by the river silt; and the south west which for a greater part of the year is a vast lake. the north of the district "the population clusters along the banks of the old water courses, which are always fringed by a thick belt of fruit and other trees . . . Away from the streams villages are found chiefly in the centre of the depressions, where houses have been built only after mounds have been raised to place them above flood-level." In the south east of the district "very little of the present land has been in existence a hundred years and not very much for more than fifty years . . . Probably there has been land and population in all this country for five centuries or more . . . but the homesteads are new and orchards of well-grown trees are rarely to be seen." In the south west "the whole land is a vast marsh, yet able to sustain a large and growing population . . . The dismal swamp now contains 800 people to the square mile. For eight months of the year the country is a lake, 700 square miles in extent, whose surface

is broken only by the village clumps and by the two strips of land which mark the course of winding streams; in the other four months large parts dry up and enable crops to be grown upon them." Such are some of the features of this district. Mr. Jack then goes on to describe the homestead, with its separate huts, built of bamboo and mat, round a common courtyard. He gives a number of diagrams showing these, and also many interesting details of the uses and of the construction of the huts. A large number of the cultivators roof their huts with corrugated iron, especially along the railway and steamer routes. The furniture is scanty and generally the rooms are absolutely bare, without attempt to paint or decorate with pictures. There are no windows of glass. "In truth the absence of internal decoration and of furniture is not a question of money, but a question of taste. The wealthiest Bengali who is untouched by foreign influences keeps as bare a house as his poorer neighbours and eschews ceilings, painted walls and furniture as completely as they do."

From a description of the homesteads he goes on to a description of their occupations. "The life of the cultivator in Eastern Bengal is in many ways a very happy one. Nature is bountiful to him, the soil of his little farm yields in such abundance that he is able to meet all his desires without excessive work." "In those parts of the country in which jute is grown he works at two seasons of the year, growing rice on one portion of his land and jute on another; but many of the cultivators content themselves with the winter rice crop and so put all their labor into the months of March, April and May. . . . The time table of the cultivator, therefore, when his land is unfit for jute. shows three month's hard work and nine months idleness; if he grows jute as well as rice, he will have an additional six weeks' work in July and August. These are not conditions of which he can reasonably complain." The amusements of a peasant in the slack season are fishing, gossiping, and visiting his friends in other villages. "But the chief amusement . . . is to attend the neighbouring markets. Probably ten or twelve such markets will be within walking or boating distance of his homestead, all of which he will attend in turn, even in his busiest season finding time to go to two markets a week and during the winter and the rains, when

he has nothing to do, going usually to four or five and sometimes to a different market every day. He does not ordinarily go to buy anything, but to talk with his friends and neighbours. A cultivator may attend a market every day of the week and not spend more than four pence altogether, but when he has money the Muhammadan at least, is a great spendthrift." But these easy going peasants have a hard working women-folk. "Theirs is a dull life indeed; the bustle of the market place is not for them, nor the gentle pleasures of the fisherman. . . . But custom is a kindly autocrat who softens every hardship. They do not know and do not want the charms of a fuller or a freer life."

The second chapter deals with a statistical evaluation of the domestic budgets. 77 per cent of the population are cultivators and 28 non-cultivators, and in the calculation of the budgets these two classes are kept apart. great labor was devoted to the preparation of domestic budgets, by over two hundred officers who made a close scrutiny of the habits and expenditure of more than two thousand families for the purpose." These families were classified in four groups, those in comfort, those below comfort, those above indigence and those in indigence. This classification was made by the personal observation of the officers who were told, expressly, that "where they find an agricultural family well-fed, well-housed and well-clothed, this is comfort; the material necessities are fully satisfied: where they find a family thin and ill-developed, their garments old and worn, their huts ill-thatched and tumbled-down, this starvation. In most cases the evidence of the eye is decisive, . . ." On the opposite page is given the budget for two groups of the cultivators. The money values were calculated from the quantities of the goods consumed by the peasants and the prevailing local prices.

[The following table is abbreviated]

Items of Expenditure				nually ily in	Amount Spent Annually by a Family in extreme indigence			
Food		£	8.	d.	£	s.	d.·	
Rice	•••	8	0	0	4	0	0 .	
Vegetables	•••		10	0		2	0	
Fish, Milk and Ghi	•••	}	10	8		. 3	0	
Salt, Oil and Spices	•••		13	4		7	4	
		£9	14	0	£4	11	4	
Other Necessaries—								
Clothes	•••	1	18	4		12	0	
Tobacco, Molasses, Betel Nut	•••	1	6	8		2	. 4	
Utensils, House Repairs, Furniture	•••		12	0		5	4	
Kerosine Oil ,	•••		2	8		2	8	
		£ 2	14	8	£1	2	4	
Miscellaneous—								
Rent	•••	1	13	4		6	0	
Local Taxation	•••	İ	2	0	·	1	0	
Purchase of Cattle, Boats,	•••		12	0		2	0	
Thorough House Repairs			10	8	İ	5	0	
Medical Treatment	•••		6	8		2	0	
Entertainment	•••	1	0	0		5	0	
		24	4	8	£1	1	0	

The standard of living which obtains among the cultivators is much more uniform than among the non-cultivators, in which class are included the cooly, the artisan, the shopkeeper and the professional man, each group having a different set of traditional ways of living.

The next chapter deals with income and economic conditions. The same classification, as above, is maintained. I give a table of the results arrived at for cultivators:—

Class		No. of families	Percentage of the population	Income per family per annum
	1			Rs.
In comfort		167,139	49 %	865
Below comfort		96,294	28 %	288
Above Indigence		68,969	181 %	
In Indigence	ĺ	14,706	41 %	166
In margence	•••	14,700	(43 /0	115

The total annual income of the agricultural population was Rs. 71,800,000, or Rs. 280 per family per annum. This total is shown to agree well with the total for the value of the main crops of the district which amounts to Rs. 60,000,000. The difference between the two is easily accounted for by the minor sources of income.

Many interesting points are brought to notice in this chapter, on the sources of income, the extent to which the peasant works for hire, how the growing of jute converts the "self-sufficing" peasant into the more modern producer for a market. These and other points must be passed over in order to briefly examine the chapter on indebtedness. I give a statement, in tabular form, abbreviated, from the Appendix.

INDEBTEDNESS

	In the population as a whole	Amongst cultivators	Amongst non-culti- vators
•	Rs.	Rs.	Rs.
Total amount of the debt (in lakhs)	201	142	59.9
Average amount of debt per family	59	55	70
Percentage of population:—			
(1) Free from debt	59 %	55 %	78 %
(2) In debt, about ½ of the annual income.	20 %	24 %	101 %
(8) In debt, about ½ annual income	12 %	18 %	71 %
(4) In debt about one years' income	7 %	7 %	6 %
(5) In debt, about two years' income and more.	2 %	11 %	8 %
Average amount of debt amongst indebted families.	Rs. 144	Rs. 121	Rs. 258

The following table shows the distribution of indebtedness among the four classes:—

Amongst		Amongst all families	Amongst in comfort	Families below comfort	Classified above want	Living in want		
Cultivators:								
Hindus	•••	40	88	48	48	87		
Muhammadan	•••	47	42	54	58	44		
Non-cultivators :								
Hindu	•••	26	21	33	80	28		
Muhammadan	•••	80	24	83	85	82		

PERCENTAGE OF FAMILIES INDEBTED

It will be seen that the indebtedness is distributed fairly uniformly among all classes, the cultivators being more indebted than the non-cultivators, and the number of indigent indebted not greater but below the average in other classes. If the amounts of indebtedness are examined we find that the indebtedness of the poorer is less than that of the richer classes; those "in comfort" have incurred nearly half of the total debt. For the district as a whole the debt amounts to about $\frac{1}{6}$ th of the total income, which debt is not heavy were it uniformly distributed. "As 55% of all cultivators are entirely free from debt and another 20% have borrowed very little. income available for the reduction of debt is the income of only one quarter of the population, which already finds the earnings of four months in the year swallowed up in the payment of interest." Mr. Jack advocates the extension of co-operative credit banks under the supervision of a number of agents of an influential class; two hundred, he suggests, where only two or three now exist. " It would be their first duty to arrange the formation of these pioneer societies and to tempt out of the well-to-do cultivators their savings to finance them."

The last chapter deals with taxation. "In Faridpur it is easy to estimate with considerable accuracy the burden of taxation." The landtax, a legacy of the Permanent

Settlement, is light, remaining at Rs. 600,000, at which figure it was fixed 120 years ago. Had the Permanent Settlement not been effected the Central Government would have secured Rs. 2,400,000, as the profits from land have increased six-fold. The total taxation in Faridpur amounts to 8s. 8½d. per head. This, compared with that in other countries, is extremely small and amounts to about 5 per cent of the annual income:—

REVENUE	DED	TTTLAN
RECVENIE	PKK	HEAL

	Country.	Of central authority		Of local authority				Total				
France	•••	 £ 4	16	0	£	l	12	0	4	2 6	8	0
Italy	•••	 £ 2	15	0	£	L	1	0	4	2 3	16	0
Holland	•••	 3	1	0		2	11	0		5	12	0
Japan	•••	 1	2	0		D	12	0		1	14	0
Faridpur	•••	 0	8	41	•	0	0	32		0	3	81

"It may be assumed that the revenue from all sources amounts in Faridpur to about 8s. 6d. (Rs. 2-10) per head of the population. A calculation on the same basis shows that the revenue demand in Bengal is only half what it is in any other province in India, although in all probability the income per head of population is greater than in any other province." "It will be observed that Bengal... is incontestably the most lightly taxed of civilized countries in the world. It is probable that there is no other in which the burden of taxation is not twice or three times as great as it is in Bengal."

A feature of local taxation, which is exceptionally light on the whole, is the extreme inequality of its incidence. "The substance of that information" (obtained from the examination of the amounts paid by each individual family) "is that the burden is not equally borne by all sections of the community, that all non-agricultural families and the richer cultivators escape too lightly, and that the local authorities receive less than half of what has been paid."

Mr. Jack makes a comparison with Italian conditions and I give this further quotation. "In writing an official

report upon the preparation of a Record of Rights in the district of Bakarganj, adjacent to Faridpur, I had occasion to use this analysis for the purpose of comparison. Bakarganj came very well out of the comparison, the net income of the cultivator being equal to that of the Italian cultivator who pays six times as much in taxes. The writer of the article remarked of the life in the Italian village: the people are vegetarians, not from choice but from necessity. They cannot afford to eat meat nor even eggs; they cannot afford to eat wheat bread but eat maize porridge and maize bread, vegetables and fruit, and what the cow produces.' This is for all practical purposes a description of the food of the people of Faridpur without the comfortable addition of fish in abundance to the daily diet.. The houses of the Italian peasants are, no doubt. stronger, but that is due to the greater severity the climate; they do not contain as much floor space. although they are much better furnished. The clothes of the peasant are made of better cloth and are far less scanty. but this again is due to difference of climate; . . . the population has scarcely any money at all for such indulgences as jewellery and spends very much less upon marriages and upon similar domestic ceremonies. . . . The Italian land tax was three times as much, the local authority took twice as much, and the village council seventeen times as much from the Italian peasant as from the Bakargani peasant. In other words what the Bengal peasant spends on marriages and jewellery the Italian peasant is compelled by his government to spend on roads and lighting, on sanitation, on a good water supply, on medical attendance and on education."

The book is an extremely valuable one and should be in the hands of all serious students of economic conditions in India. It would be of immense value if every settlement officer were able, with the machinery and staff at his disposal, to conduct an investigation upon similar lines into the economic conditions of his district.

T. T. WILLIAMS

The Law and Principles of Co-operation in India. By H. CALVERT, I.C.S. pp. vi, 142. Thacker, Spink & Co. Rs. 4.

During recent years Indian co-operative literature has been gradually gaining in volume, the latest addition to it being the volume under review. As the title itself indicates, the book deals mainly with the law of co-operation in India. In the brief Introduction of 21 pages, however, the author traces the history of the co-operative movement in India and explains the principles on which it is based. He then takes the Co-operative Societies Act, 1912, and annotates it section by section. The notes are largely based on the Report of the Imperial Committee on Co-operation, Reports of the All-India Registrars' Conferences, Resolutions issued by the Government of India and the author's own personal experience. They refer also to the rules and practices of various European countries. These references, though often prolix and not of direct use to the Indian co-operator, show him the lines of progress and the way to tackle new and unforeseen problems. The notes, on the other hand, are generally sound and full. and should prove of use to practical co-operators and students of co-operation. We should like to draw the attention of our readers especially to the notes on Sec. 43 in which Mr. Calvert has summarised under proper headings all the rules issued by the various local governments.

But there are a few sections the wording of which is ambiguous and which require fuller elucidation. In various sections (5, 12, 14, 20, 21 and 22) we are told of a member's "interest" in capital, "interest" in the society, etc. But, not even on p. 40, has Mr. Calvert given us a sufficient explanation of these phrases. Again, Secs. 19 and 22—two of the most difficult sections of the Act—require fuller elucidation.

The book is, on the whole, very carefully written. Based as it is on wide reading, sound judgment and actual personal experience, it will be a most useful vade mecum for all practical co-operators in India.

The Population Problem in India. By P. K. WATTAL, M.A. Indian Finance Department, Assistant Accountant-General, Bombay. Bombay: Bennett, Coleman & Co. 1916. pp. v, 88. Price Re. 1.

There can be no question but that the population problem is the most serious economic question now confronting reformers

in India. The evils of economic dependence, social degradation and widespread poverty and destitution may be traced to the extraordinary growth of population relatively to the means of subsistence. Yet the further analysis, which the progress of social and economic studies has made possible, shows that the excess of population is due to definite causes and that the means of reducing the evil are well understood.

We wish to extend a hearty welcome to Mr. Wattal's book: in the first place because of the very great importance of the subject, and secondly because he has produced a scholarly little work of an earnest and thoughtful character, containing plenty of evidence of careful research and of a well balanced judgment. Too many Indian economists are content with descriptions of existing economic conditions, which they issue to the public under the imposing title of "Indian Economics". It is to be hoped that the book under review may serve as an example which will stimulate all economists in India to a study of those deep underlying economic forces, which are at present so very little understood or even studied. Whilst we can justly praise the book under review, it is by no means the last word on the subject, and we hope that it will stimulate professors of economics to investigate further the various difficult questions which it raises.

A brief account of the book and its argument may be of interest, and with this we may couple a critical estimate of some of the author's statements and conclusions. The first chapter states the Law of Population very concisely and clearly. We like it so much, that we quote fully from it:—

"Population... has an inherent tendency to multiply beyond the means of subsistence prepared for it by Nature;... This general tendency to increase is held in check in two ways, by the preventive and the positive checks. The preventive check is voluntary and consists in the restraint from marriage when there is no reasonable chance of maintaining the habitual standard of comfort in life. The positive checks include diseases, wars, epidemics, famines, extreme poverty, unwholesome occupation, etc., in short everything which in any way contributes to shorten the natural duration of life. Such being the nature of the checks to the increase of population it is evident that the preventive and positive checks

must vary inversely as each other: that is to say, in countries where the preventive check prevails very little there will be a high death-rate; while in countries where the preventive check prevails the death rate will be low. It follows, therefore, that in countries with a high birth-rate there will be a rapid succession of short-lived beings to keep up the numbers, one generation being pushed out of existence before its time to make room for the next—a phenomenon painfully common all over India. . . . The only remedy, therefore, for poverty and other evil effects of the principle of population is moral restraint or abstinence from improvident marriages."

The second chapter deals with Marriage and its relation to the growth of population. The custom of very early marriages in India, which is ascribed partly to religious injunction, is deplored. Its effect upon fertility and upon the birth-rate is carefully analysed with the help of statistics, and the remedies for the evils thus disclosed are discussed, and the postponement of the age of marriage is recommended. Judging from the last Punjab Census Report the teachings of the social reform societies have had little or no practical result: at any rate girls still marry at the same youthful age, and postponement of the age of marriage amongst men, whilst beneficial, is not-so important.

The third chapter deals with the rate of natural increase of the population in India as compared with other countries: and the short expectation of life characteristic of India is ascribed to the very high birth-rate which keeps the population at a low economic level subject to every form of disease and misery and consequently death at an early age. The high birth-rate is accompanied by a high death-rate, consequently the rate of increase of the population is small and there is a terrible wastage of life. The fourth chapter is devoted to migration; and here again the author is interesting and sound. except for the surprising statement (page 35) that in Bihar there are no large local industries. Yet in this Province, and the neighbouring Raniganj coalfield, coal and mica mining. the iron and steel industry, and the railways already employ over a quarter of a million persons, and are rapidly expanding. The author is right, however, in estimating the possible relief from overseas emigration as negligible, and in regarding Assam as a promising field for absorbing surplus population

if the vested interests of the tea plantation industry did not stand in the way of granting land on easy terms. chapter, on the Pressure of Population on the means of subsistence, is a long and important one, in which the author marshals much statistical evidence. He first reviews the density of population in each of the provinces and their natural sub-divisions, and points out that though there are in some districts large areas of what is officially termed "cultivable waste", in reality there is very little land, at any rate in British India, which is really available for cultivation. The so-called "cultivable waste" includes threshing floors. well-runs and village paths (see pp. 49-50); and much of it is either alkaline land or situated in dry tracts where it is beyond the power of the cultivator to provide water for irrigation. We think, however, that the author is unduly pessimistic as to the opportunities for extension of irrigation, both from new canals and by pumping from wells, and that if Government would pursue a bold policy and carry out the recommendations of the Irrigation Commission, much dry land in Northern India would be opened up and could support many millions more of population which it is to be hoped might be drawn from the congested areas. Towards the end of this chapter there is a useful discussion of the question whether the alleged scarcity of agricultural labor is real.

A final short chapter gives us a retrospect of the book and sums up clearly and concisely the very cogent arguments which the author puts forward regarding the economic and social evils of the growth of population and particularly of the agriculturalist population. We commend the book to the earnest study of every thoughtful Indian and to the rulers of this country; and we trust that the author will continue his investigations and writing on this most important subject.

H. S. JEVONS

The Co-operative Movement in India. By Professor P. Mukherji, M.A., F.E.S. (London), Assistant Editor, "Bengal Co-operative Journal", with an introduction by Rai J.M. Mitra Bahadur, M.A., Registrar of Co-operative Societies, Bengal. Calcutta: Thacker, Spink & Co., pp. xxiv, 453, viii. Price Rs. 4-8.

We welcome the second edition of The Co-operative Movement in India which has been "entirely re-written and considerably

enlarged." Undoubtedly it covers considerably more ground than the first edition. The arrangement of subjects in the book under review is entirely different from that in the first edition, which was divided into nine chapters with six appendies, whereas the new book possesses twenty-one chapters with three appendies.

Broadly speaking Professor Mukherjee's book may be divided into two main parts: (i) History and development of co-operation in the West, (ii) History and principles of co-operation as practised in India. The first two chapters deal with the former, and the subsequent 19 chapters along with three appendixes deal with latter. The first chapter of the first edition has been much enlarged and developed in the new book and a different title "Brief Survey of the Origin and Development of Co-operation" has been given to it. The literature on "Co-operation in Europe" is very extensive. Wolff, Fay and Holyoake have contributed a great deal on the theory of co-operative principles and their applicability to the western conditions. Persons interested in the progress of co-operation in India must first of all learn lessons from the experiences of Europe. Professor Mukherji has condensed the vast literature of European co-operation into this chapter, and thus has saved much time and labor for the people who wish to be initiated into the movement. In the second chapter the author gives some account of the "Recent Developments of Co-operation in the West" and shows his close acquaintance with the recent literature on the movement. He introduces this chapter in the hope that these developments "may be adapted to the needs of India and established here in suitable centres."

Afterwards he "attempts within a brief compass to give a comprehensive survey of the phenomenal development of the co-operative movement in India". The chapter on "Rural Indebtedness in India" is somewhat vague and does not satisfy the expectations of the reader which the title warrants. Chapters IV and V describe how the scheme of Sir William Wedderburn proposed in 1882 was passed into law after 22 years in 1904. Sir Fredrick Nicholson, Mr. Dupernex and other workers in the field found in the Hindu caste system, in the Moslem sentiment of common brotherhood and "one for all" in the Punchayet system and particularly in the "Nidhis" and "Kuttu Chittu" of Southern India ample

evidence of the peoples' aptitude for co-operation. Nidhis seem to have been started about the middle of the last century when Schulze Delitsch and Raiffeisan initiating the co-operative movement in Germany". Chapter VI points out the defects of the 1904 Act which led to the appointment of Sir Maclagan's Committee and the subsequent passing of the 1912 Act. Chapter VII gives some useful "hints on the organization and management of agricultural credit co-operative societies" which are of great practical importance to workers in the field. Chapter VIII on "Dharamgolas" deserves the attention of every co-operative student of Indian Economics. "Owing to the poverty of the great mass of agriculturists it often happens that they have to sell their grain immediately after the harvest when the prices are at their lowest in order to pay rent, mahajan's debts or Land Revenue assessment, and they are unable to keep in hand enough corn to maintain their families until the next Prices almost always begin to rise some three or four months after the harvest. If the agriculturists had been able to hold up their produce for three months, they would have had to sell less and could have kept in hand a stock enough to carry them over to the next year without an appeal to the sowkar". An institution like dharamgolas will undoubtedly enable them to derive the greatest economic advantage from their produce by selling their harvest at a good profit and laying by a stock of reserve for their subsistence and for any unforeseen emergencies, such as famine and scarcity.

In Chapters VII, VIII, XI, XII, XIV and XV the author describes the different types of agricultural or non-agricultural credit and non-credit societies in India and Burma. he has not only traced the progress of the co-operative movement in India from its earliest stage to the present day but has also explained the nature and underlying principles of the different forms of Indian co-operative institutions and has also incorporated the model byelaws of 14 different kinds of societies. "The byelaws would be useful not only to the practical co-operator, but also to students of economics. who will find therein practical applications of the abstract theories of co-operations."

Chapter XVIII is a reproduction of Professor Coyajee's noble vindication of the Indian Co-operative credit movement.

A very useful feature of Chapter XX is the "annotations" to the Co-operative Societies Act, 1912. The select Bibliography and Index have made up a great deficiency of the first edition of the book. "The classification of Indian Co-operative Institutions as described in the book" and three appendixes at the end which contain recent statistics, the Government of India Resolution on the growth of Co-operation in India and abstract report of the Imperial Committee on Co-operation, are of great use to students preparing for any examination. In the end we would like to note that Professor Mukherjee has omitted to deal with the "hasiyat registers (status books) which are kept in all the primary as well as central societies of the United Provinces. The advancement of loans and purchase of shares are entirely based on them. They have also got great economic value, for after sometime they will be a very useful record giving the real status of the peasantry. Officials, professors and students of economics, and every one interested in co-operation in India, will find the book very useful both for study and reference. We offer our hearty eongratulations to Professor Mukherjee for his enterprize in bringing out this useful introduction to the subject. Calcutta University has prescribed Professor Mukherjee's book Examination. We hope that other Indian Universities will follow suit by recommending it for their examinations.

Circles and Recipes in Economics. By V. L. VAJPAYEE BHIMPURE. 1916. pp. 22. Price As. 5.

We would not in the ordinary course have noticed this pamphlet at any length, but the practice of writing notes and cram books is growing so fast that we must take this opportunity to utter a timely warning against it. Writing of notes with a view to helping students to pass examinations by mere cramming is bad enough in any subject, but in economics its dangers are especially great and real. As is commonly agreed, economics is still an unformed science, and one in which the everchanging human element is constantly to be reckoned with. Any attempts to reduce things to formulæ, therefore, is, to say the least of it, a task of doubtful utility. And such formulæ may prove positively misleading—even dangerous—in the hands of young beginners at the subject who are not acquainted with the many reservations

with which economic generalizations have to be taken. Taking an example from the pamphlet under review, we find that the very first "circle" runs thus:—

"Demand is great—Prices rise—Supply increases—But Demand falls—Prices fall—Supply diminishes—Demand becomes great."

Now in the first place we fail to see any relation between the first two parts of the circle, viz. Demand is great—Prices rise." It is the increase or decrease of demand—amongst several factors—which causes a rise or fall of Prices, not its absolute greatness or smallness. As a matter of fact, too, the expression "Demand is great" is hardly definite enough for scientific purposes.

But we have a much more fundamental criticism of Mr. Vaipayee's "circle", in that it is not a circle at all, because there is no necessary causal sequence of the events he' names. "Demand increases; prices rise; supply increases" would be correct; but to state next that demand falls is a pure assumption—the assumed fall of demand is not a consequence of the increase of supply. In fact in so far as demand does alter as a result of an increase of supply it is almost always increased, because with a lower price people become accustomed to using or consuming the commodity. A possible exception would be articles which were fashionable only whilst rare and expensive. But, of course, most changes of demand do not depend on the supply at all. Mr. Vajpayee finishes up with another extraordinary assumption—that "demand becomes great" because supply diminishes. There are some real economic circles of cause and effect-particularly in connection with the population and wages questions and the standard of living; but these the author has stated only partially. and with very inadequate explanation. His so-called "recipes" are merely mnemonics, chosen quite at random. There is in fact not an ounce of scholarship in the pamphlet; and we regret that a professor in a mission college should have allowed his name to appear in it as author of a brief preface.

Public Administration in Ancient India. By PRAMATHANATH BANERJEA. London: Macmillan & Co. 1916. 7s. 6d. net.

Dr. Banerjea has succeeded in producing a learned and interesting book, and there is much that is attractive about his attempt to apply the nomenclature of modern Social

Science to the conditions of life in Hindustan during the It is hardly necessary to period 500 B.C. to 500 A.D. remark that the author views the past through spectacles of a hue so roseate that, were they but directed upon the present. he must surely proclaim the arrival of the millennium. This arises mainly from the uncritical attitude he adopts towards In the Preface he says: "Nothing has been "said here which is not supported by reliable evidence." Just so: but all evidence is reliable up to a certain point, even if its reliability possesses a purely negative index. Our complaint against Dr. Baneries is that he accepts statements which are obviously one-sided at their face-value: he makes no real attempt to discover and allow for the glorification of Brahmans and Brahmanism which runs through his texts. many of his compatriots who turn all too willingly from the solid advantages of life under present-day conditions to the imaginary glories of a remote and obscure past, he has little sense of historical proportion. He fails altogether to see that the conditions of life which he is extolling are essentially primitive and rudimentary: that a certain degree of progress in the art of building may exist side by side with manners and customs not far removed from barbarism. The following statement is a good example of Dr. Banerjea's method. the course of a chapter on what he calls Foreign Relations he says (p. 198): "Krishna, for example, was a plenipotentiary "when he was sent by the Pandavas to the Kura Court with "full powers just before the Great War." So, one must suppose. Noah was First Lord of the Admiralty when the keel of the Ark was laid down. Again, in the Introductory portion (p. 11, note 1.) Dr. Banerjea compares Kautilya to Machiavelli, much, of course, to the disadvantage of the latter. He says that while "Kautilya's political ideas continued to be accepted by many generations of kings and statesmen as safe guides in their work of actual administration, Machiavelli's Prince and other works were valued merely as treatises and never influenced to any considerable extent the current of political events. The italics are ours. and themselves. Dr. Baneriea concludes they speak for amazing statement: "If any European with the politician can be compared to Chanakya, it is Bismarck". We should have thought St. Bruno or Suger of St. Denys a much L. F. RUSHBROOK WILLIAMS closer parallel.

GOVERNMENT PUBLICATIONS

Review of "The Trade of India" in 1915-16. DEPARTMENT OF STATISTICS, INDIA. Calcutta: Superintendent of Government Printing. 1916. pp. vi, 112, vi. Price As. 12.

The Review of Trade may be regarded as the premier publication of the Director of Statistics. It is a fascinatingly interesting survey of the inland and foreign commerce of the Indian Empire during the financial year. It is always compiled with great care so that an extraordinary amount of information and all the most important trade statistics are condensed within a convenient compass. Whether the reader be interested in the course of trade as a whole or in the progress of any particular commodity, in the balance of trade and imports of treasure, or in customs, shipping and freights, he will find in this volume much clearly stated information on the subject of enquiry.

In the first chapter we find a survey of the general characteristics of the year, in which the following subjects are dealt with; the total sea-borne trade, with distinction made between private merchandise and that shipped on Government account; the effects of the war on foreign commerce; the imports and exports of Indian merchandise, with a paragraph on re-exports, followed by a section on Government stores. There follows an interesting and important section which deals with the year's imports and exports of gold and silver, both coin and bullion, followed by a brief note on the balance of trade which shows a largely increased balance in favor of India as compared with the previous year. In the next section the change in the volume of trade is exhibited by calculating the value of the total trade on the basis of the prices prevailing in the previous year. Whilst there is a distinct decline in the recalculated value, i.e., volume, of imports, there was a marked increase in the recalculated value of exports. result is to show a shrinkage of the total volume of foreign trade by 1.8 per cent. Comparing the actually recorded values of 1915-16 with the recalculated values, we find that the average rise of prices was 4 per cent. The first chapter concludes with a section on wholesale prices in India in 1915-16, in which the index numbers of groups of commodities are quoted, whilst there is also a note on changes of wages.

In the second chapter the trade with special countries is dealt with in a comparative manner and colored charts are

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provided which compare graphically the distribution of both the import trade and the export trade with different countries, in 1915-16 with the last pre-war year 1913-14. Different colors are used for British possessions, the allied countries, and all other foreign countries. We think that in the next Review a fourth color might be used to distinguish the enemy countries, as they now are, in the trade of 1913-14, from the neutral countries.

The third chapter analyses the imports into India according to the different groups of commodities, e.g. chemicals, cotton goods, glass ware, machinery, matches, metals, oils, and so forth; and in the fourth chapter the exports are dealt with in the same way, particularly interesting sections being those on coal, indigo, rice, wheat, hides, jute, wolfram, and oils and oil-seeds.

Chapter V deals with customs, shipping and freights, and Chapter VI with frontier trade. Burma and Bihar between them account for more than half of the total frontier trade of India. The following two chapters deal briefly with the coasting trade and with inland trade; and the last chapter is devoted to a summary and conclusions. In the last we find an interesting table giving the percentage of exports by sea to the estimated total production in the case of a number of agricultural products. The proportion of the crop exported rises from practically nil in the case of sugar and 4 per cent in the case of rice, and 6 per cent of wheat, to 65 per cent in the case of raw cotton, 49 per cent for linseed, and 105 per cent for indigo due to the holding back of the previous year's crop.

The volume as a whole is well turned out and there are few suggestions which we could offer for improvement. We venture, however, to suggest that there is no great advantage in separating the curves of the monthly changes of imports and exports and of total trade upon different charts. We think that they would gain in interest if all were placed upon one chart and distinguished by different colors, and this would leave room for another chart in the remaining half of the page. The very numerous summary tables inserted in the margin are very useful and interesting; but they need to be distinguished more clearly from the text in places either by enclosing with rules, or by means of a wider margin. We welcome the monthly charts of prices which are given for a few commodities; but is there any reason why these should be reproduced

by white lines on a black background? They look ugly and are not so clear as the ordinary black lines on white ground.

The second part of the volume contains valuable abstract tables of foreign trade, which provide details sufficient for many purposes. It is only for detailed investigations that the large annual volumes of statistics of sea-borne trade need be referred to.

H. S. JEVONS

Report of the Agricultural Research Institute and College, Pusa (including the Report of the Imperial Cotton Specialist, 1915-16), Published by Superintendent, Government Printing, India, Calcutta: 1916, pp. iv, 115, Price 6 annas or 7d.

This report embodies the many-sided activity of the Research Institute of Pusa. addition the report In to Director, which is a general one, we have special reports about their sections from the Imperial Agriculturist, Imperial Agricultural Chemist. the Imperial Economic Botanist, the Imperial Mycologist, the Imperial Entomologist and the Agricultural Bacteriologist. The Researches carried on during the year pertain to a variety of things, chief among them being, green manures, the problem of infertility of soil under trees, rice as an article of diet, sweet potato as a possible source for the commercial production of starch, the establishment of new grades of wheat in India, experiments with Java indigo seed, the cultivation and propagation of fruit trees, the fungus diseases of crops and plants and the pests that affect cotton and rice, and other beetle-grubs that lay eggs on pea-pods, the storage experiments, the cattle flies and mosquitoes.

The Cotton Specialist has been making a tour to examine the varieties of cotton and the possibilities of their development, especially the Cambodia and Dharwar-American. He makes valuable recommendations with regard to Indian cotton growing.

The total expenditure during the year 1915-16 was Rs. 4,63,817. The gross receipts from the sale of farm produce, milk, publications of the department, and other articles amounted to Rs. 15,840. A sum of Rs. 23,502 was spent on "Sugar Experiments" in the United Provinces, in addition to the above expenditure. But against these figures we may put the estimate of the Imperial Economic Botanist that the substitution of the country wheats by Pusa No. 12 would mean

an immediate average increase in yield of fifteen rupees an acre. It is estimated that when this new wheat has been adopted for the entire area sown, the aggregate increase of the value of the crop will be not less than ten crores for the United Provinces alone.

In addition to the Scientific work of the Institute, students were trained for Post-Graduate Course in the various sections, and short courses were also given in cattle management and seri-culture.

Amongst the most important publications of the Institute is the Agricultural Journal of India—a special number being published, including all papers of agricultural interest read at the Third Indian Science Congress held at Lucknow in January 1916. The work of the Research Institute and the College is likely to prove very useful for the agricultural development of India.

REVIEWS OF BOOKS

BRITISH AND FOREIGN

An Introduction to Economics. By FRANK O'HARA, Ph.D., Associate Professor of Economics in the Catholic University of America, Washington, D.C. New York: The Macmillan Co. 1916. pp. 255. Price 4s. 6d. net.

The author of this small text-book aims at making the general principles easy for general readers and students. The book is remarkable for its clearness and brevity. The author has evidently a clear head and much experience in summing up economic truths for his students. Yet, in spite of its brevity, the book deals with no less than six theories of interest, and with the justification of rent and interest, has chapters on economic development, on the single tax and socialism, and on trust problems, labor legislation, and social insurance, and is in other ways surprisingly thorough.

The book is full of splendid examples, brief and clear. Thus the flow of income and its use is compared with the flow of a river into irrigation canals, and its evaporation Fruit out of season is a luxury and fruit in the fields. in season a necessity. Will-power and foresight in providing for the future is illustrated by the leaky roof which cannot be repaired in wet weather, and does not need repair in The definitions are usually vivid and simple. dry weather. Thus, economic goods are those which are scarce in relation to the wants they gratify. The margin of consumption is the dividing line between wants gratified and those left ungratified. Value is the power which ownership gives of securing other goods. But a market is defined both as the buyers and sellers of a commodity, and as the area of sale. There are comparatively few arithmetical examples, and few diagrams. in these are all straight lines, but the statement is none the less clear and accurate. The assumptions are usually stated clearly; for example, the law of diminishing utility assumes that the units of the commodity are equal in size and quality, and that the character of the want does not change. But in introducing diminishing returns, it is said that ten men with

a given capital "cannot produce as much on 100 acres as on 1000 acres," which is usually true, but might fail in the case of a river valley running through a desert.

For the most part, the theory is excellent. In the theory of distribution there is an especially fine explanation of the relation of diminishing returns to marginal productivity which is made by assuming that all the agents of production remain constant, and showing how a stable equilibrium tends to result in the division of products among them. Diminishing returns is illustrated by examples of constant capital and constant labor, as well as of constant land. According to the author, the law of diminishing returns has to do with the relative proportions of land, labor, capital, and enterprise. But the laws of increasing or decreasing cost assume that the factors of production are always combined in the most effective manner. The relation of inventions and new methods to decreasing cost has apparently not been considered.

An unusual departure is made in employing the term "value in use," not to mean utility, but to mean the marginal utility multiplied by the number of articles in the supply.

The questions at the end of every chapter are strictly confined to the text, and the supplementary reading is chosen from a few standard books. The brief index makes no mention of Adam Smith or Ricardo, although they are elsewhere mentioned, but it contains the names of Raffeisen, Le Play, Engel, and others even less generally known. The author is familiar with all the most recent developments, for example, he cites the conclusions of Streightoff with regard to consumption in America, and gives a most clear explanation of the new United States Federal Reserve Act.

Altogether for brevity, for clearness, for conciseness, and for simple, straightforward thinking the book is one of the best we have seen. But the issues it raises cannot, of course, be settled so briefly and so simply.

CHARLES THOMPSON, JR.

The Sixteenth Financial and Economic Annual of Japan [with Statistics to end of 1915]. Published by the DEPARTMENT OF FINANCE. Tokyo: The Government Printing Office. 1916. pp. vii, 196, 3.

Nothing is an unmixed evil—not even war on an unprecedented scale. Thus while most of the great nations of

the world are engaged in a bloody strife, such as the world has never seen before, some of the neutrals, and one at least of the Allies, are making hay while the sun shines—over millions of dead and dying, wounded and starving. For Japan the war has come as a god-send.

The immediate consequence of the outbreak of hostilities in August 1914 was, of course, a severe blow to the economic organization of Japan, involving great dislocation, and even partial paralysis of her trade and industry. But this state of affairs did not last long, and the year 1915, especially the latter half of it, was for her a time of unprecedented prosperity. The principal factors which contributed, more than anything else, to bring about this change were two in number. First a remarkable expansion of her foreign export trade, due to a large sale of munitions to Russia, and the other Allies, and also to increased exportation to India, the South Seas and Australia and to other countries which had hitherto been supplied by the belligerent Powers. Side by side with this great growth of exports, there occurred a sudden fall in her import trade, thus turning the international trade balance, which had been uniformly against her since 1896, with the exception of two brief years, 1906, and 1909, heavily in her favour. We give in the following table some figures to illustrate our statement.

TOTAL VALUES OF EXPORTS AND IMPORTS OF MERCHANDISE

Year	Exports	Imports	Excess of exports (+) or Imports (-)	
	Yen	Yen	Yen	
1918	682,460,218	729,481,644	- 96,971,481	
1914	591,101,461	595,785,725	4,684,264	
1915	708,806,997	582,449,938	+ 175,857,059	

It will appear from the above figures that, as compared with 1914 exports went up, in round numbers, by Yen 117,000,000 (£11,987,021), imports went down by Yen 63,000,000 (£6,452,985) and there was a net increase of Yen 53,000,000 (£5,428,659) in the total trade. The balance of trade which had been unfavourable in 1914, turned heavily in favour of Japan, and led, it may be pointed out, to a marked increase in her specie holdings in the foreign markets.

It may be interesting to note the changes in Japan's export and import trade with India during the last three years.

TOTAL VALUE OF MERCHANDISE EXPORTED TO AND IMPORTED FROM INDIA

Year	Exports to India	Imports from India	Excess of Exports (+) or Imports ()	
	Yen	Yen	Yen	
1918	29,878,414	173,173,861	- 143,300,447	
. 1914	26,048,837	160,824,460	- 134,276,123	
1915	42,202,460	147,585,310	105,882,850	

The above figures are instructive and show to what a remarkable extent Japan has increased her hold over the Indian market. Within a period of no more than twelve months she has increased her exports to this country by more than 16 million yen, representing a percentage increase of about 61.5, while she has materially reduced her imports from us.

The following details of Japan's trade with India compiled from tables 52 and 53 (pp. 100-7) of the Annual under review will be found interesting:—

TABLE SHOWING VALUE OF CHIEF COMMODITIES EXPORTED TO INDIA

Commodity	1918	1914	1915
	Yen	Yen	Yen
Camphor	880,601	824,719	1,254,697
Silk Tissues, (habutae)	6,812,529	8,274,295	5,405,876
Do., (kaiki)	65,489	15,604	45,404
Silk handkerchiefs	132,486	64,879	78,268
Towels, cotton	508,090	859,767	850,986
Coal	1,095,095	511,858	277,159
Porcelain and Earthen-	1		
ware	814,686	284,865	514,929
Matches	1,978,785	2,895,972	5,494,188

The figures in the above table serve a double purpose. They show the immediate disturbing effects of the war, and also, what is more significant, the wonderful manner in which Japan not only recovered from the great shock, but turned

it to good account. The most arresting figures are those relating to matches. They show to what a remarkable extent Japan was able to capture the Indian market for this commodity. In this connection the following remarks taken from the Review of Trade of India for 1914-15 will be found illuminating:—

"Until recently matches 'made in Sweden' or 'made in Norway' monopolised the Indian market, but cheap Japanese Matches have since 1912-13 been a formidable competitor. The influx of Japanese matches has erormously increased owing, it is said to (1) cheap freights, (2) existence of a Japanese league of manufacturers and shippers, and (3) the formation of a regular service sailing from Japan to Calcutta via Rangoon. Japan has now captured the major portion of the Indian match trade. Imports from Sweden and Norway continue to show a noticeable decrease. The reason is that Japanese matches are very much cheaper than Swedish matches. The monthly average (of import from Japan) for the last four months of 1914-15, showed an increase of 221 per cent as against the corresponding period of the previous year." This is how a practical people backed by a practical Government set about their business. No amount of mere talking, even though supported by commissions, can help to industrialize a country.

The following table gives some details about Japanese imports from us:—

VALUE OF CHIEF COMMODITIES IMPORTED FROM INDIA

Commodity	•	1918	1914	1915
		Yen	Yen	Yen
Rice	•••	20,080,917	7,465,677	647,874
Indigo	•••	31,488	26,899	146,024
Cotton, Raw	•••	148,089,172	145,447,591	189,704,522
Flax, Hemp, Jute China grass	and 	1,158,058	882,811	1,280,548
Wool	•••	5,388	12,408	5,650
Oil-cake	•••	1,912,084	1,269,888	511,572

It will be seen from this table that, compared with 1913, our export of rice to Japan has in 1915 practically dis-

appeared, owing, it is stated, to abundant harvests in that country. There has been a substantial fall in other items too. The only noticeable increase is in the case of indigo, due no doubt to the stoppage of the supply of aniline dyes from Germany.

The second factor which contributed to alter the international trade balance of Japan was the almost phenomenal growth of her shipping business. The war naturally caused a great dearth of bottoms, for a considerable number of the vessels belonging to the belligerent powers were requisitioned for military purposes. Japan was thus enabled to obtain a very much larger share of the world's carrying business, and her shipping was extremely brisk. The following table, based partly on the Financial and Economic Annual of Japan for 1914, and partly on the one under review, shows this clearsteamship companies. The figures refer only ly. to

	compa-	Cap	ITAL	vessels				ruto
Year	No. of ecnies	Authorised	raid up	No. of v	Gross Tonnage	Gross earnings	Net earnings	Average rate of dividend
1918	23	Yen 70,484,000	Yen 62,484,000	3286	1,529,264	Yen 74,500,000 (nearly);	Yen 15,700,000 (nearly).	10.7
1915	24	78,234,000	65,796,500	3487	1,621,205	90,000,000 (nearly).	21,451,000 (nearly).	33.0

Thus while the paid up capital, and gross tonnage increased but slightly, net earnings went up by almost 50%, and the average rate of interest more than trebled. This was no doubt partly due to higher freight rates, but mostly to greater briskness of trade.

But while the effect of the great war is reflected chiefly in the figures relating to volume of foreign trade and shipping, there are other figures relating to Finance, Agriculture, Industry and Commerce, Banking and Money Market, and Communications, which will be found of considerable interest, as indicating the rapid strides which this wonderful land is taking in her industrial march. The Annual contains, besides all this, numerous diagrams, and a map of Japan. Separate figures are given for Korea and other Japanese Provinces.

Altogether the Annual is brimful of the most interesting information. The arrangement of matter is extremely good,

and the get up of the volume very neat, and some of our Government departments, with their abominably printed blue books, might do worse than copy the style of the Sixteenth Financial and Economic Annual of Japan.

The Real German Rivalry: Yesterday, To-day and To-morrow. By SIR SWIRE SMITH, M.P. LL.D., Member of Advisory Committee of Royal College of Art. London: T. Fisher Unwin, Ltd., Adelphi Terrace. 1916. pp. 80. Price 1s. net.

The author deals "as a business man addressing business men" with the problems which will arise after the war, in providing employment for the returned soldiers and for "the great army of women who have replaced men in many industries." He is also concerned with the general question of the competition of British trade with that of Germany. and he makes a very powerful plea for a general interest in education and its application to the industrial and professional needs of England. He traces the growth of German expansion and success to the national belief in education and seriousness with which it has been regarded. After examining the present industrial position in England he quotes many authorities as to the need of increased efficiency, both labour and of direction. He pleads for equality of opportunity to be given to all in every corner of the United Kingdom and urges the creation of a real national system of education, equal to the task of fitting young men and women for their task in life.

We think that Sir Swire Smith has accurately diagnosed the weakness of Great Britain in regard to industrial competition, that is, in competition with such enterprising peoples as the Americans and the Germans; and much that he says about education is applicable with still greater force to India. He also deals briefly, and we think soundly, with tariff policy after the war, and points out that it would not be wise policy for England to place obstacles in the way of her own trade simply to injure the trade of a competitor. He is not very hopeful that the Allies will be able to find a common economic policy. We may at least agree with him that the matter requires the deepest enquiry and consideration, and that it would be false policy to attempt permanently to depart from sound principles in order to grasp at an economic phantom which would speedily dissolve through the natural forces of

economic development. A combination of the Allies in trade policy must be evolved from careful investigations and a gradual process of experiment towards the desired end.

The New Protectionism. By J. A. Hobson. London: T. Fisher Unwin. 1916. pp. xx, 153. Price 2s. 6d. net.

This interesting little book is a critical examination of New Protectionism advocated at the Paris Economic Conference, recommending a scheme of Economic Independence and Self-sufficiency for the Allied Nations of Europe as against the Central Powers which are now at war. New Protectionists under the false plea of 'Defence' wish to split Europe into two hostile camps of commercial rivals and this "economic war after the war" is to be fought with the weapons peculiar to Protectionists. This aggressive program of national defence is, according to Hobson, not only foolish but criminal. This policy of economic nationalism in the name of defence is 'a crime against civilisation'; and in the last chapter entitled "The Open Door," Hobson gives a constructive program which would remove the causes of economic antagonism among nations and bring about the new conditions of international intercourse on lines of 'fair competition and fruitful co-operation.'

The author starts with exposing the common errors of the Protectionist school of Chamberlain and takes his reader along with him in showing that "protection sets the producer against consumer and trade against trade, locality against locality, capital against labour, land against both, and lastly nation against nation, falsely represented as economic corporations." With his usual clearness and lucidity of style Hobson succeeds in proving that the growth of Protectionism in the United States, France and Germany is due to the organised political pressure of powerful manufacturers brought to bear on their respective national governments with the object of securing tariffs, bounties and railroad facilities.

In the chapter on "The Tangles of a Tariff", the author raises the practical difficulty of harmonising the conflicting interests of the British Isles with the rest of the British Empire; the interests of the Empire with the Allied nations; the application of general tariff to neutrals, and the difficulties of excluding enemy goods which may

be useful for home manufactures or for general consumption. Hobson foresees a violent dislocation of commerce and finance after the war and the New Protectionists will, he holds, introduce elements of discord and dissension which would end in a serious recoil on the already damaged commerce of Great Britain. He condemns in very strong terms the fallacies underlying the position which the New Protectionists intend to assume and shows them the economic unsoundness of their position by facts and figures. He has no patience with the Protectionists of the old school and he has much less patience with the New School of Protection represented by the Paris Conference.

As we read through the book we are impressed by the general sanity of the views of Hobson, who is out and out a Free Trader of an advanced abstract type, and who has sincerity of conviction combined with a rational interpretation of the complex conditions created by the present War. He realises that the "process of economic penetration and expansion cannot stop", but he holds that it is possible "to extract from it . . . the poisonous sting of international rivalry." How far this dream of Hobson's is capable of being realised, it is difficult to say. We think our author rather overlooks the fact that one result of the War will be that in the mind of the average citizen "defence" will for long remain far more important than "opulence." A great war naturally leads to a revival of protectionism under the plea of national defence, which is justified, we think, so far as protection is utilized solely for the public purpose of developing those resources of the country which contribute to military efficiency. Whilst a policy of protection wisely controlled for purely national ends will continue to appeal to economists in spite of Hobson's visions, we think he succeeds in making a very fair case against the rather vague, but sweeping proposals of the "New Protectionists" who assembled in Paris in June 1916. The resolutions passed by this Conference are summarized in an Appendix.

Although we doubt whether the doctrine of absolute free trade can be maintained so long as any liability to future War remains, Hobson's "New Protectionism" is certainly a book which should not be lightly passed over. We commend it to our readers as a controversial writing of a high order of merit.

The Cost of War: and ways of reducing it suggested by economic theory. A Lecture by F.Y. EDGEWORTH, M.A., Fellow of All Souls, Professor of Political Economy in the University of Oxford. Oxford: University Press. 1915. pp. 48. Price Is. net.

Professor Edgeworth in his usual inimitable style throws valuable suggestions for reducing the cost of war, of course mainly as an economist and not as a statesman. He extends the money costs of war, to include not only the national expenditure, but also the indirect loss of national income consequent on the dislocation of production and the deterioration of the capital fund accumulated in peace time for production. Some authors have also estimated and included the loss of living capital and the whole cost of preparing for war in times of peace—thus making the money cost of war something colossal and immeasurable. 'It must not be supposed however', says Professor Edgeworth, 'that suggestions for reducing the cost are unavailing'.

He elaborates at some length the conception of capital, 'involving the element of time' (Jevons) and represents the process of production and consumption as being a continuous flow—a stream descending through the successive stages of production from raw materials to half-manufactured goods, on to finished goods fit for consumption, back again to re-creation of wealth by replenishing, through distribution, the agents of production. This system of capital, in response to the demand, furnishes superflous luxuries as well as necessaries; and the arrangements for financing a war, in the opinion of Professor Edgeworth, should be such as will divert labor and capital from the production of luxuries and leave the existing channels of production otherwise as little impaired as possible, so that at the termination of war a readjustment may take place with least work and waiting.

At the close of his lecture the Professor suggests the creation of a permanent committee concerned with economic preparation of war as distinguished from its financial preparation. This aspect of war should be made the special object of scientific observation and analysis; and some such methods as have been adopted in averting conflicts between labor and capital might, he thinks, be applied to disputes between nations—disputes that are called political, but are often largely economic.

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN ENGLAND ON THE LAST DAY OF EACH MONTH

Held in the following form	80th June 1917	81st July 1917	81st August 1917
	£	£	£
1. Gold in India	47,000	58,000	45,000
2 Cash placed by Sec. of State at short notice	6,024,860	6,022,338	6,000,048
3. British and Colonial securities (value as at 31st March, 1917)	17,457,684	17,220,616	16,742,581
4. Securities since purchased (at cost price)	9,088,705	9,488,692	10,192,856
Total	32,567,749	82,784,646	82,980,480

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

Year		80th June	81st July	81st August
		Rs.	Rs.	Rs.
1915	•••	17,41,54,000	21,04,96,000	22,85,67,000
1916		18,22,74,000	20,41,51,000	18,29,65,000
1917	•••	89,60,52,000	85,96,81,000	26,48,44,000
Bank-Rates		80th June per cent	31st July per cent	81st August per cent
Bank of Bengal		6	6 .	6 ,
Do. Bombay	•••	6	6	6
Do. Madras	•••	8	8	7
Do. England	•••	5	5	5
Exchange Rates		s. d.	s. d.	s. d.
On Demand	•••	$1 4\frac{9}{32}$	1 4 9 32	1 $5\frac{1}{92}$
Telegraphic Transfers	•••	1 4 7/32	1 4 7 89	1 4 81 22
3 months'	•••	1 4 19 2	1 4 19 82	1 5 7 76
6 months'	•••	1 4 27 88	1 4 27 82	1 5 28 28
Government Paper (81 p	o. c.)	66-8 to 66-14	66-2 to 66-8	68-8
Bar silver	•••	39½d	89 å d	46 <i>d</i>

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE OF PAPER CURRENCY, 1917

	80th June	81st July	81st August	
	Rs.	Rs.	Rs.	
Total amount of notes in circulation 1	98,28;65,115	99,81;21,295	105,15; 26,65 0	
Deduct 2	Nil	Nil	Nil	
RESERVE		and the second s		
COIN AND BULLION				
In India:	·			
Silver coin	19,66;88,428	25,92;18,788	28,66;05,801	
Gold coin and Bullion	7,10;32,045	7,27;10,150	12,21;57,763	
Silver Bullion under coinage	69;11,226	47;59,226	45; 48,069	
In England:—				
Gold coin and bullion	4,80;00,000	4,42;50,000	2,55;00,000	
Securities (at purchase price):—	-	-		
Held in India	9,99;99,946	9,99;99,946	9,99;99,946	
Held in England	51,17;52,975	51,47;94,900	51,48;08,571	
Total Reserve	98,87;84,615	99,57;88,010	105,86;20,150	
Deduct 8	9;19,500	26;11,715	20;98,500	
Net Total Reserve	93,28,65,115	99,81;21,295	105,15;26,650	

¹ Figures to the left of the semi-colon indicate the number of lakhs.

² Deduct—withdrawn from circulation by Foreign Circles and in course of remittance to circles of Issue.

⁸ Deduct—Amount due on Bills drawn by one circle on another.

PRINCIPAL CONTENTS OF FOREIGN JOURNALS

ECONOMIC JOURNAL

(Quarterly Journal of the Royal Economic Society. London: Macmillan & Co., Ltd.)

MARCH, 1917

I. ARTICLES-

The Conscription of Income, by Prof. O. M. W. SPRAGUE.
The Economics of the War loan, by Prof. A. C. PIGOU.
Taxation of Excessive Profits Abroad, by J. C. STAMP.
Small Holdings and Corn Prices, by A. W. ASHBY.
The Remuneration of Women's Services, by ELEANOR
RATHBONE.

II. Review-Articles-

British Financial Organisation, by Prof. C. F. BASTABLE. Industrial Fatigue, by P. S. FLORENCE.

The Black Death, by E. LIPSON.

(Also Reviews of Jack's Economic Life of a Bengal District and Wattals' The Population Problem in India.

JUNE, 1917

I. ARTICLES—

The Netherlands Bank and the War, by Dr. G. VISSEING. The Depreciation of British Home Investments, IV, by a STOCKBROKER.

Industrial Ireland under Free Trade, by Prof. C. H. OLDHAM. Anglo-Russian Economic Relations, by JULES GAY.

II. Review-Articles-

Some German Economic Writings about the War, by Prof. F. Y. EDGEWORTH.

(Also a Review of Mukerjee's Foundations of Indian Economics.

THE JOURNAL OF POLITICAL ECONOMY

(Published monthly from October to July by the University of Chicago, U.S. A.)

JANUARY, 1917

PROBLEMS OF ECONOMIC INSTRUCTION.

I. Under-Graduate courses in Economics

The Amherst Program in Science, by W. H. HAMILTON. Courses in Economics and Methods of Instruction at North Western University, by F. S. DEIBLER.

Discussion on the above.

II. Graduate work in Economics

Graduate Work in Preparation for Teaching, by F. L. McVEY.

Graduate Work in Economics, by W. F. GEPHART. The Place of Economic Theory in Graduate Work, by J. A. FIELD. Discussion.

III. Economics and Allied Fields

The Relation of Engineering to Economics, by J. L. HAY-FORD. Discussion.

The Relation of Law and Economics, by E. A. GILM) RE. Discussion.

Balanced Curriculum in Business Education, by L. C. MARSHALL.

Economics and the Science of Business, by E. D. HOWARD. Discussion.

NOTES—Education in Accounting, Financing, Foreign trade—Dyestuff Census.

Book Review of Taussig's Some Aspects of the Tariff Question

APRIL, 1917

Legalising Combination for Export Trade, by C. S. DUNCAN. The Virginia State Debt and Internal Improvements, by R. L. Morton.

How to Avoid Government Ownership of Railroads, by E. C. CARMAN.

NOTES-The Revenue Act-A Shipping Subsidy Discarded -Policy as to Foreign Loans.

Book-Reviews of Curtis' The Problem of the Commonwealth, Hirst's The Political Economy of War, Smart's Second Thoughts of an Economist.

MAY, 1917

The Philippine National Bank, by H. P. WILLIS.

The State Life Fund of Wisconsin, by M. A. SMITH.

The Ethics of Land-value Taxation, by H. G. Brown.

South America and the War, by W. S. Tower.

NOTES—The New Bond Issue—Note-Issue Power of Reserve Banks.

Book-Reviews of Curtis' (Editor) The Commonwealth of Nations, Bristols' Social Adaptation, McBains' The Law and Practice of Municipal Home Rule and Wither's International Finance.

JUNE, 1917

Economic Conditions and the Birthrate after the War, by A. B. Wolfe.

Railroad Co-ordination, by A. V. ARRAGON.

Automobile Insurance Rates, by R. RIEGEL.

Medical Benefits under Workmen's Compensation, by J. M. RUBINOW.

NOTES—The New War Loan—Borrowing Power of the Nations—Rates of Interest and their Effect—Requirements of the Government—The Program of Taxation.

Book-Reviews of Reed's The Moral of Monopoly and Competition, Steven's Unfair Competition, Brown's Principles of Commerce.

THE AMERICAN ECONOMIC REVIEW

(Published Quarterly by the American Economic Association, Secretary Prof. A. A. Young, Ithaca, N. Y.)

MARCH, 1917

Theoretical Issues in the Single Tax, by H. J. DAVEN-PORT.

A Bule for Testing Tax Valuations of Railroads, by M. A. Smith.

Six Years of Postal Savings in the U.S., by E. W. KEM-MERER.

The History of the Trade Dollar, by P. GARNETT.

JUNE, 1917

What the Federal Reserve System has Done, by H. P. WILLIS. Determinants of Lumber Prices, by G. A. STEPHENS.

Marketing Functions and Mercantile Organisation, by L. D. H. WELD.

Real Wages in Recent Years, by F. W. JONES. Open Price Associations, by H. R. TOSDAL.

Railroad Equipment Obligations, by A. S. DEWING.

QUARTERLY JOURNAL OF ECONOMICS

(Published by the Harvard University, Cambridge, Mass.)

NOVEMBER, 1916

The Taxation of Property and Income in Massachussets, by C. J. Bullock.

Why Organised Labor Opposes Scientific Management, by

R. F. HOXIE.

Teaching the Introductory Courses in Economics, by C. E. PERSONS.

The Fall in German Exchange, by M. T. BONN.

Commercial Contracts of the Genoese in the Syrian Trade of the Twelfth Century, by E. H. BYME.

FEBRUARY, 1917

Climatic Change and Agricultural Exhaustion as Elements in the Fall of Rome, by E. Huntington.

The Separation of Railroad Operating Expenses between Freight and Passenger Services, by W. J. CUNNINGHAM.

Work and Pay: a Suggestion for Representative Government in Industry, by R. G. VALENTINE and O. TEAD.

The German Steel Syndicate, by H. R. TOSDAL.

Total Utility and Consumer's Surplus under Varying Conditions of the Distribution of Income, by P. G. WRIGHT.

NOTES—Standardization in Marketing (T. N. CARVER.) Exhaustion of the Soil and the Theory of Rent, (F. W. TAUSSIG). Some Considerations on Land Taxation, (J. R. TURNER).

BOOKS RECEIVED

- The Foundations of Indian Economics. By RADHAKAMAL MUKERJI, with an introduction, by Patrick Geddes. London: Longman's Green & Co. pp. xxvi, 515. Price 9s. net.
- English Public Health Administration. By B. G. BANINGTON, with an introduction by G. Wallas (Studies in Economics and Political Science Series). London: P. S. King & Son pp. xiv, 388. Price 7s. 6d. net.
- British Income and Property. By J. C. STAMP (Studies in Economics and Political Science). London: P. S. King & Son. pp. xvi, 538. Price 12s. 6d. net.
- Circles and Recipes in Economics. By B. L. VAJPAI BHIMPURE, published by the author, Kydganj, Allahabad. pp. 22. Price As. 5.
- The Law and Principles of Co-operation in India. By H. CALVERT Registrar C. S. Punjab. Calcutta: Thacker Spink & Co. pp. vi, 152. Price Rs. 4.
- First Annual Report of the Indian Economic Society.

 Bombay: Servants of India Society's Home. pp. 28.
- The Physiography of the River Nile and its Basin. By Capt. H. G. Lyons. Cairo: National Printing Department pp. viii, 411, 4.
- The Selective Draft Law and the President's Registration Proclamation. New york: National Bank of Commerce. pp. 22.
- A Constructive Criticism of the U.S. War Tax Bill. New York: National Bank of Commerce. pp. 22.
- Federal Reserve Act including Amendments to June 1917. New York: National Bank of Commerce. pp. 72.
- Property Rights and Trade Rivalries. By G. E. ROBERTS. New York: National City Bank. pp. ii, 21.
- War Finance Primer. New York: National Bank of Commerce, pp. 186. ii.
- The Basis of Legislative Policy in Modern States: Inaugural Address. By SIR N. G. CHANDARVARKAR. Bombay: Servants of India Society's Home pp. 56. Price As. 5.
- The Finances of Great Britain and Germany. By E. F. DAVIES. London: T. Fisher Unwin Ltd. pp. 61. Price 2d.
- Economics of British India. By J. N. SARKAR. 4th Edition. Calcutta: M. C. Sarkar & Sons. pp. viii. 376. Price Rs. 8.

- The Essentials of a University in a Great Centre of Population.

 (A reprint of Part II of the Final Report of the Royal Commission on University Education in London). Calcutta: Superintendent Government Printing. pp. vi, 56. (not for sale).
- The Report of the Committee of Inquiry appointed to Report on the Question of Housing of Laborers on the Collieries of Bihar and Orissa. From the office of Additional Deputy Commissioner, Dhanbad.
- Town Planing in Balrampore. By Prof. P. GEDDES. pp. 80, with maps.
- Report on the Town of Dacca. By Prof. P. GEDDES. pp. 26. Town Planning in Nagpur. By Prof. GEDDES. pp. 17.
- Town Planning in Jubbulpore. By Prof. GEDDES and LANCHESTER. pp. 10.
- Report on the Model Colony at Kanchrapara. By Prof GEDDES. pp. 14. Eastern Bengal Railway Press.
- The Bombay Co-operative Quarterly. Vol. I. Nos. 1 & 2. Bombay: Co-operative Library.
- Economic Problems of Peace After War. By W. R. Scott. Cambridge: University Press. pp. xii, 122. Price 4s. 6d.
- The Mechanism of Exchange. By J. A. Todd. 1917. London: Oxford University Press: pp. xi, 255.
- Seasonal Trades. Edited by S. WEBB and A. FREEMAN. London: Constable and Co. pp. x, 410,6.
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 Principal Poona Agricultural College. Bombay: Oxford
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- Commercial Banking Practice. New York: National Bank of Commerce. pp. 66.
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- The Seventeenth Financial and Economic Annual of Japan.
 Published by the Department of Finance. Tokyo:
 Government Printing Office. 1917. pp. vii, 194.

INDIAN JOURNAL OF ECONOMICS

Vol. I. Part 2. 1918

SOUTH INDIAN ECONOMICS¹

GILBERT SLATER, D.Sc., M.A. UNIVERSITY OF MADRAS

It is well for me to explain in the beginning that the word 'South India' in my title means the south-eastern corner of the peninsula lying south and east of the railway line from Madras through the Palghat Gap to Cochin. I have only lived in India since December 1915, and while one of my duties is to visit different parts of the Presidency of Madras and the States which come within the geographical sphere of the University of Madras, I have begun my journeys in the corner mentioned, and have not yet been able to visit the northern part of the Presidency and the State of Hyderabad.

For many years two economic questions relating to India have excited my concern. At different periods we have had harrowing details in England of Indian famines; and the question has pressed upon my mind to what extent the causes of famines have been purely the failure of monsoons or other climatic misfortunes,

¹ Delivered in Bombay on the 20th July, 1917.

and to what extent they are the consequence of poverty among the people which prevents them from having sufficient resources to survive a failure of crops.

When it became known in England that it was estimated that the average Indian income was only about £2 per head, this question was to some extent answered, but one was faced with the further question as to what was the cause of this intensity of poverty, exceeding that to be found in any other civilized country.

To this question an answer was readily supplied through the spokesmen of Indian opinion who made their views generally known in England. We were told that Indian poverty was due to the exactions of the land revenue, that its amount was so heavy as to crush the peasants into poverty, and that periodical resettlements took away from the peasant all feeling of security and caused him to shrink from expending labor and capital on improving his holding, and that the remedy for Indian poverty was to extend Permanent Settlement over the whole land.

I am bound to say that I found it hard to credit this explanation even in England; and that the system of permanent settlement, particularly as carried out in Bengal, appeared to me to have all the vices of our landlord system in England, which practically all people except the landlords themselves are agreed is in need of very drastic reform, and of reform which would make it much more similar to the ryotwari system with periodical resettlement. However it was easy to see that if the land revenue exacted were so high as to exceed the economic rent of the land, or if it were levied in such a way as to deprive the ryot of any motive of improving the land it must be disastrous, and a potent cause of poverty in India. The question was, whether these things were so as a matter of actual fact?

Almost immediately I came to Madras I had my first conversation on the subject. I asked a man if he were a land owner. He told me that while living in Madras he owned ten acres of wet land in his native village, that he had let these to his brother-in-law, and that, though an absentee landlord doing nothing to the land and undertaking no responsibility except that of paying the land tax, he received and retained for himself six times the amount of the kist.

The first village that I visited showed a similar result. The chief land owner who owned about 400 acres, and let out about 200 acres, told me that the average rent received was Rs 30 per acre and the average kist Rs 5 per acre. Similar information was received in every other place I visited; and I have ascertained that the average rent received by a landlord who has done at his own expense no improvement whatsoever to the land is five times the kist throughout the districts that I include under the term 'South India'. Nor have I found any reason to suppose that Settlement Officers ignored the instructions which are given to them by the Government of exempting improvements made by the pattadar from consideration in determining the amount of the kist. Thus for example in one village when I asked what the kist was the villagers told me it. was Rs 1-8-0 per acre; when I asked what rent the pattadar received from the sub-tenant they told me Rs 40 per acre. This was dry land improved by sinking of wells. When I passed out of British India into the State of Travancore and discussed the subject of land revenue with students in the Maharaja's College, they told me that the Travancore system was identical with the British system, but that the kist was so moderate as not to be oppressive as it was in British India. I then met an official in the Agricultural Department of the Travancore Government,

and asked him what kist they levied on the wet lands in the village in which we happened to be. He told me that was Rs 26 per acre. Now the maximum kist in the Madras presidency is Rs 22-8 per acre. I quite agree that the Travancore assessment is so moderate that it is not injurious or oppressive; but I have come to the conclusion that the same is the fact also with regard to the Madras assessment. I do not believe that the pressure of land revenue in those, parts of India which I have seen is in any way an explanation of Indian poverty.

If however the cause of Indian poverty is not to be found in the explanation generally offered to us, what is the true explanation? And further in what directions should we look for some remedy, or at least some palliative? Please note that I do not profess to give any full or adequate answer to these questions. I only propose to offer you some remarks based upon my own observations.

South India is to such an extent an agricultural country that almost the whole population is either directly employed in agriculture, or supported by agriculture at only one remove. There are some considerable mills and factories in the city of Madras. are cotton mills also in Coimbatore, Madura, Ambasamudram and Tuticorin; there are important bodies of hand-loom weavers and workers in other handicrafts in various towns and villages. But out of the population which is not directly employed in agriculture, the great majority consists of craftsmen who serve the agriculturists in the village, of traders who deal in agricultural produce, or vakils whose income is derived from disputes about land, and an immense variety of other people who are, as I said, dependent agriculture at one remove only. Hence prosperity of South India depends almost entirely upon

the efficiency with which agricultural work is done. Where the average worker produces a high output, it is possible for the average income to be high; where the average output of the worker is very small the average income must necessarily be very low. The first thing therefore that one naturally inquires into is the amount of work done in a day by the agricultural worker.

I watched with amazement the harvesters at work in the paddy field. They squatted on the ground and each man grasped with his hand the stalks of paddy that came from one root and severed them close to the ground with a blow from the sickle. He then gently deposited the bundle behind him, shuffled a few inches, still squatting, and repeated the operation. I asked how many men it took to cut an acre in a day. The answer was eight, and that women were necessary in addition to carry the crop to the threshing floor. This was in South Arcot. In Mysore in the neighbourhood of Bangalore I was told that it was the custom for women to cut the corn and for men to carry it, and that there it took 15 women a day to cut one acre. Now in England when we cut corn we do it by machinery. and one man driving a cutting and binding machine can. I believe, quite easily cut and bind six acres in a day. But if we put this aside and compare instead harvesting in England as it was before machinery came into use, when corn was cut with the scythe, one man would cut ordinarily between one and two acres per day. Agricultural operations are very varied and it is extremely difficult to make any fair comparison between the efficiency of Indian agricultural labor and English. But making a very hazardous estimate I should say that the produce of an English agricultural laborer's day's work is about ten times as great as that of the Indian, this English superiority being due partly to the Englishman's

greater size and muscular strength, partly to the colder climate which makes energetic labor more possible, partly to the fact that in the development of methods, of working expedition and efficiency have been more sought after in England; and partly to the fact that the English labor has the assistance of more effective tools and a much larger equipment of machinery. I have said this estimate of one-tenth is a very rough one, but in conversation with Dr. Harold Mann, Principal of the Poona Agricultural College, I asked him to form a similar estimate and he confirmed my guess.

I may here say that I am anxious to collect information with regard to the relative efficiency of English and Indian labor when they can be fairly compared. The most favorable comparisons I have yet found are as follows. I was shown over the Buckingham Mills in Madras by the Manager, who is a Lancashire man. Now the Buckingham Mills have first class machinery, and are very efficiently managed, and the manager informed me that the output in the weaving sheds of a day's labor was as compared with Lancashire in the proportion of 1:21. Here we have Indian and English labor competing on level terms, each being assisted by machinery of equal efficiency. Next I was informed by Mr. J. W. Madeley, Special Engineer of the Corporation of Madras, who has much to do with the supervision of excavating work, that three Ubrayar sets, each set comprising one man and one woman, do on an average the same amount of work in a day as two English navvies. If we reckon one Ubrayar woman to be half a man, as she earns half the wage. three sets are equivalent to 41 men and we get the same ratio of efficiency here as in the weaving shed. viz., 1:21. The tools and methods used by the Ubravar are different from those used by the English navvy.

But Mr. Madeley is of opinion that they are of about equal efficiency, and do not involve any greater waste of muscular effort.

But next notice that the land of South India is partly wet and partly dry. Of the wet land very little produces three crops a year, some two crops a year, but most only one crop. On one crop land agricultural operations are practically confined to about four months in the year, on two crop lands to about seven months in the year; on dry lands to about six months in the year. Taking the land of South India all round it may be said that on the average there is agricultural work for the agriculturist for about fivetwelfths of his possible working time. For the rest of the year there is nothing for him to do. As a rule there are no subsidiary industries in which the agriculturist can be profitably employed when his work is not wanted on the land. Now in my old studies in English economic history I came to the conclusion that the chief cause of the deplorable deterioration in the economic condition of the English agricultural laborer towards the end of the eighteenth century was the fact that the industry of handspinning, which had been a subsidiary industry of the agricultural classes, was . killed by machine competition. I am inclined to suspect that there may have been in more recent years a serious deterioration of prosperity of the agricultural classes of South India for the same reason, though it may have been counterbalanced or more than counterbalanced by other causes operating to the benefit of the agriculturist, as improved communications, better demand, etc. Notice that a persistence of weaving, when the weavers use machine spun yarn, does not fulfil the same purpose. The weaver commonly is a weaver only, and the ordinary agricultural man cannot occupy idle days by taking to the loom. But when handspinning

was practised I believe, that in India as in England it was a subsidiary occupation of agricultural families.

We have next a third cause of agricultural poverty which I may exemplify by a particular example. a village near Palni I had a conversation with an elderly ryot who was one of the leading inhabitants of his village. He told me that he owned four acres of wet land which he valued very highly and eight acres of dry land which had but little value. In that particular village the rainfall is small and the soil is a somewhat barren red earth, and I have no doubt that the dry land was as a matter of fact of very little value. Up to the age of fifty he kept clear of debt; in the following ten years he had accumulated debts, which, with the help of unfortunate litigation and compound interest, had swelled to Rs 4000. He told me that usually the whole produce of his four acres was required to feed his family, and that he had no rice to send to the market to pay his kist or the interest on his debt. As his family including sons, daughters-in-law, and grand-children numbered twenty-five people you can see that the statement is a perfectly credible one. Now consider when this man dies, his four acres of wet land and eight acres, of dry must be divided between his five sons equally, and they will probably have also in turn grand children as well as children to support in considerable numbers. How then can the descendents do otherwise than into deeper and deeper poverty? As long as under Hindu law a holding must be divided equally between sons, and somewhat similarly under Muhammadan law which makes provision for widows and daughters. and all the heirs cling to their portion of land, there is a continual drift towards a more and more minute subdivision of land, till a large proportion of the holders have so little land that they cannot utilise their

labor on it properly even under conditions that I have already pointed out, viz., small output of a day's work and small number of working days in the year. Hence, putting these three causes together, we may say that the Indian agriculturist suffers in an extreme degree from what the English economist calls "chronic underemployment"; and that they necessarily result in very low income, not only for the agriculturist, but also for the bulk of non-agriculturists who are in the main dependent upon agriculture. This it appears to me is the most important cause of the lowness of income which prevails in South India.

We now come to the conclusion of possible remedies. The general line of policy it appears to me to be indicated is that the people themselves should be stimulated to think about their economic condition and form their own plans for improving their status. The first step in this direction, which is a purely preliminary one, should be the expansion and improvement of elementary education, the employment of much better teachers at a higher remuneration who should aim not merely at teaching reading, writing and arithmetic, but at developing the general intelligence, initiative and character of the children.

Next it appears to me that it is very desirable that without in any way interfering with the development of the University system of education which is based, and in my opinion rightly based, on the study of English, there should be side by side with this a continual development of technical education given through the medium of the vernacular, and that this form of education should be allowed to expand just as fully and rapidly as the demand for it grows. The ground having been thus prepared it should be possible to make a direct economic advance through the fostering of scientific agriculture, of village indus-

tries which should be subsidiary to agriculture, and also the development of great urban industries like the cotton industry of Bombay which would offer an alternative means of living to those whose villages are overcrowded.

The above are general views, but it may be interesting to you if I go into some details with regard to the opportunities for definite progress in the particular area that I am speaking of.

- (1) It appears to me that there is a magnificent field open for an oil industry. South India produces in great abundance many sources of food oils as ground nut, gingelly, coconut, besides cotton seed, which supplies the best cooking oil, and castor and other plants which supply valuable medicinal oils. However, the nut or seed which produces the oil is itself exported largely and the oil cake is lost to the country, and by exporting your cake you are exporting the fertility of the soil. I am glad to have the information that great developments in this direction are planned.
- (2) We have in some parts, as you have in the neighborhood of Bombay, great opportunities for development of hydro-electric power, although not under conditions as favorable for easy exploitation. Nevertheless there is in this a great asset probably capable of a very profitable development.
- (3) There are in different parts of South India great deposits of valuable iron ore, the best known being close to Salem. The difficulty in their exploitation is the lack of coal. But probably this difficulty could be circumvented by the development of forestry, which would supersede the scrub jungle with more profitable timber and enable adequate supplies of charcoal to be obtained. Many other advantages would follow from the development of scientific afforestation.

- (4) Madras claims the honour of providing in Sir Frederick Nicholson the great pioneer of Indian cooperative credit banking. Much however has to be done before the credit banks are sufficiently developed to make it unnecessary for the great bulk of the ryots to apply to exorbitant money lenders. Further the co-operative credit banking is in my opinion only one of the developments of banking which are necessary to fully utilise and develop the capital resources in the service of agriculture and other industries.
- (5) A great deal has been done in the making of roads and railways. But a great deal remains to be done. Consider, for example, the case of a village in the black cotton earth district at a distance of two or three miles from the nearest metalled highroad. The economic benefit to such a village of a good connecting road can be worked out in actual figures of increased efficiency of oxen and is far greater than the necessary cost.
- (6) I understand that when Lord Pentland first became Governor of Madras, he made up his mind to do something to improve the cows; and after some four years he succeeded in effecting the first steps which will probably not reach their full utility in less than a hundred years. A good Madras cow will yield about five times as much milk as many of the cows used in some country districts; but then a good Madras cow will not yield one-fourth of the amount of milk supplied by a good English cow. The possibility for improvement here is very great and in my opinion an increased supply of milk would have a very definite result in increasing the physical vigor of the rising generation.
- (7) The last subject on which I must touch is a very delicate one. It is notorious that there has been a considerable amount of trouble in the most southerly part of India over the adulteration of cotton. A

great injury has resulted to the ryots in the same district through the adulteration of senna. The reviving indigo industry is also exposed to danger from a similar cause. It is not, I think, sufficiently recognised that the experience of Europe, during the period in which commerce and manufacture were carried on by very small men, was that safeguards against adulteration were urgently necessary in the interest of the very merchants and manufacturers themselves. When new industries were founded in England by craftsmen migrating from the continent, the first petition that these craftsmen made to the Government was commonly that they should be allowed to form a Gild. and to appoint officers to enforce good material, good workmanship and good measure. They knew that the prosperity of their trade depended upon the prestige of their goods and that the temptation to any single producer to lower the quality was very great. same thing has been discovered by agriculturists. Thus, for example, practically every farmer in Denmark who keeps hens belongs to the Danish Egg Export Association and every egg is marked in such a way as to indicate the village where it was collected and the farmer who supplied it. If my wife in Oxford goes to the grocer's shop and buys a dozen eggs and subsequently discovers that one of the dozen is a bad one she need only to send back to the grocer the portion of shell which has the mark on it, and she is supplied with another egg instead, and the mark is reported to Hull, and from Hull to Copenhagen, and the Danish farmer who supplied the bad egg is fined heavily enough to teach him to be more careful in future.

In conclusion I should like to point out that economic advance will be most surely and rapidly effected by cooperation between the people and the Government, that it is a common interest of both,

and that a feeling of mutual trust between the people and the Government is the moral atmosphere in which economic progress alone can thrive.

[Note.—Since this lecture was given I have collected further information with regard to relative outputs of a day's labor in India and English under similar conditions. The ratio of Indian to English output varies from about 7 per cent to 100 per cent or over. I have also obtained evidence which points to the conclusion that the reason why a day's work in harvesting produces so small a result in some districts is that the resident labor force required to complete transplantation if paddy in the proper season, and therefore available for other agricultural operations, is so large that there is no need to be expeditious over harvesting.

An instance is given above in which the rent received by a pattadar is twentysix times as much as the kist. This is easily surpassed by a village in South Arcot where dry land assessed at Rs. 3 per acre, when provided with wells and used for tobacco growing, is leased for Rs. 300 per acre, and sells at Rs. 6,000 per acre.—G.S.]

A VIGNETTE FROM PETER MUNDY

E. A. MOLONY, I.C.S. COMMISSIONER, AGRA

As in so many other matters so also in the matter of famine there always has been and probably always will remain an ineradicable tendency to magnify the past and depreciate the present. The result of this tendency is accentuated by the fact that officials responsible for the prevention and relief of famines naturally think that it is better to be on the safe side and in doubtful cases classify a crop failure as scarcity and scarcity as famine rather than run the risk of underestimating the gravity of the situation and of starting relief too late.

There is therefore no cause for surprise when we find that the number of scarcities and famines officially recognised does not diminish. The public conscience is now more alert and would not tolerate conditions that in previous years would have passed without comment.

It will therefore not be out of place to consider the record of a famine which occurred in the time of the Emperor Shahjahan from which we may draw deductions as to whether of late years we have been

travelling on the right road, whether we have made progress and whether we can yet catch a distant glimpse of the goal at which we are aiming namely the total prevention of famine.

A perusal of the account recorded by Mr. Peter Mundy leaves us with good cause for satisfaction that we have advanced so far since his time and gives us every ground for feeling that we are progressing on the right lines and that if we continue on our present course without slackening our efforts we shall some day arrive at the much to be desired goal.

We are indebted to the Hakluyt Society for editing and printing the travels of Mr. Peter Mundy who served in India from September 1628 to February 1633 as a factor of the East India Company. During this period Mundy travelled from Surat to Agra via Burhanpur, from Agra through Aligarh to the Ganges, from Agra to Patna and back and then again from Agra via Ajmere and Ahmadabad to Surat.

The first mention of the famine in his journal is given in the following words:—

"About the tyme of our departure for Agra began a famine, the secondary cause thereof the want of rayne this last season, and much feared will prove very greivous, poore people begining to die for want of sustenance. God shewe mercie on all men".

We cull the following remarks about the famine from the same journal.

Relation VI

A journey from Suratt in Guzaratt (Gujarat) to Agra in Hindostan, whether Peter Mundy and John Yard were enordered and sent by the worshipfull Thomas Rastell, President Etts. Councell, to assist Mr. William Fremlen there resideinge in the honourable companies affaires, as followeth.

The 11th November, 1630. Wee departed from Suratt att eveninge, and that night came to Cumwarra (Khumbaria) (3 course), where wee mett, as wee expected, one Mirza Mahmud Saphee (Mirza Mahmud Safi), a Persian, travellinge to Brampore (Burhanpur) to the Kinge, unto whome the President had recommended us for our better safetye and accomodation in soe hazardous a tyme; for there was a great famine begun, causeinge the highwayes to be as it were unpassable for Theeves and other whoe infested it, not so much for desire of riches as for graine ett. food.

The 14th November, 1630. Wee came to Kirka (7 course), a poore Towne, halfe burnt upp and almost voyd of Inhabitants, the most part fledd, the rest dead, lyeing in the streets and on the Tombes.

The 16th November, 1630. In the morning wee departed from thence, and that evenings wee came to Dayta.

Children sold or given away

In this place the men and weomen were driven to that extremitie for want of food that they sold their children for 12d.,6d. and pence a peece; yea, and to give them away to any that would take them, with manye thanks, that soe they might preserve them alive, although they were sure never to see them againe.

The 18th November, 1630. From Baadore wee came to Netherbarre (Nandurbar), (12 course), a greate place, where wee were much troubled to finde a roome convenient for our litle Tent, by reason of the number of dead bodyes that lay scattered in and about the Towne. Att last wee tooke up our lodginge amonge the Tombes. This place Mirza chose for us, whoe alsoe invited us to dine todaye.

¹ Course = Kos, which is taken as approximately equal to 1 English miles.

The 19th November, 1630. Heere wee stayed all day, where Mirza supplied himselfe with some needfull provision for his Companye, there being be had heere, although att unreasonable rates. All this day our noses were infested and our bodyes almost infected with a most noysome smell, which after search, wee found to come from a great pitt, wherein were throwne 30 or 40 persons, men, weomen and children, old and younge confusedly tumbled in together without order or coveringe, a miserable and most undecent spectacle. Noe lesse lamentable was it to see the poore people scrapeinge on the dunghills for food, yea in the very excrements of beasts, as horses, oxen, etts. belonginge to travellers. for graine that perchaunce might come undisgested from them, and that with great greedienesse and strife among themselves, generallie lookeinge like annatomies, with life, but scarse strength enough to remove themselves from under mens feete, many of them expireinge, others newe dead. This was their estate in every streete and corner; and from Suratt to this place (in a manner) all the high way was strowed with dead people, our noses never free of the stinck of them, especially about townes; for they dragg them out by the heeles starke naked, of all ages and sexes, till they are out of the gates, and there they are lefte, soe that the way is halfe barred upp. Thus it was for the most part hitherto.

The 20th November, 1630. The caphila consisted of such a multitude of carts and people, which drewe to such a length, that hetherto wee could never see both ends from one place, and yett increasinge daylye.

For you shall understand that, att our comeinge out of Suratt, Mirza and all his people, our selves and all the strangers that came with us from thence were not in all 150 persons and about 15 or 20 carts with some cammells. And now I thinck there were noe lesse then 17 or 1800 people and 250 or 300 carts, besides oxen and buffaloes of burthen. For the countrie (people), hearinge of our comeinge this waye, resolved, for their better securitie to take hold of this oppertunitie to save their lives by avoydinge the famine and repaireinge to places of better releife. Soe that as wee passed their townes, they dayly joyned to us by multitudes, and likely soe to continue untill our arrivall att Brampoore (Burhanpur). Heere wee also stood on our guard, fearinge to bee sett upon either by theeves or famished people.

The 23rd November, 1630. Wee passed through a towne called Firpoor (? Sherpur) about which all the high waies were see full of dead bodyes, that wee could hardly passe from them without treadinge on or goeinge over some, and from thence to Talnear all the way strewed with them. Hard by this towne was a little garden watered with a well, which was the only place that gave the eye content in rydeinge neere 200 myles.

The 25th November, 1630. Haveinge remained one day moare att Talnear wee departed thence in the morninge. The Governour of the place with a good company of horse and foote accompanied us about 3 miles out of towne and then returned, leaveing 2 of his cheife men to conduct us further: and after a while, they also departed, Mirza haveinge given them an ename, unto which wee did contribute two rupees. Comeinge neere Chopra (Chopda) (16 course), wee sawe a great flock of sheepe and goates, which to us all was as comfortable as strange. The Governour of this place came out also to meete Mirza, expresseing great kindenesse, feastinge him in his castle. The bazaree or markett was prettie well furnished with provision both for horse and man, which was a great ease to our mindes. Neverthelesse the people lay dead upp and downe the streets.

The 27th November, 1630. Wee proceeded to Beawly (Yaval or Byaval), (11 course), a bigg towne with a great although ruynated castle. This was the first place about which wee saw any fruitefullnesse, heere beinge feilds of paan (pan) or beetle (betel) sugar canes and beares, a fruite as bigg as a damson, which being ripe, is yellowish and in tast pleasant, somewhat like unto apples.

The 28th November, 1630. From thence wee came to Navee (Navi), (8 course). By the way was discovered one of our Caphila, whoe would gett a Course before, and there stand as though hee were sett there for a watchman, makeinge manye of the poore people pay Jaggatt for their Carts, but beinge found out, hee was soundly chawbacked, the mony taken from him, and made to runne fast pinioned that daie. Heere in the midle of the Bazaree lay people new dead and others breathing their last with the food almost att their mouthes, yett dyed for want of it, they not haveinge wherewith to buy, nor the others so much pittie to spare them any without money (there being no course taken in this Country to remedie this great evill, the rich and stronge engrossinge and takeinge perforce all to themselves)."

On the 30th November Mundy reached Burhanpur which was well supplied owing to the presence of the Emperor.

Thence his route turned north into Malwa and be reached a better country. The entry of the 7th December 1630 runs as follows:—

"The 7th December, 1630. Now in our journieinge (Burghkheesara [Barh ki Sarai, for Borgaon], 4 course), wee began to bee freed from the sadd spectacle of dead men, but their places were supplyed by innumerable Carkases of dead beasts, as elephants, cammells, horses, buffaloes, oxen, etts., but the greatest number were of cammells.

The 10th December, 1630. (Charwa, 10 course). The countrie now began to shew it selfe with a litle better countenance then hetherto. The small townes and villages as wee passed were stored with graine in the streets or bazares, and all the way as wee went wee mett with many thousands of oxen laiden with corne goeing for Brampore.

The 22nd December, 1630. By the way, sittinge on the topp of a litle hill, wee sawe a baniare and many thousand of oxen laiden with provision. It was att least 1½ miles in length, and as many more returninge emptie to bee reladen, and all the face of the earth, as farr and distant as wee could descerne, covered with greene corne. But of all this aboundance poore Guzeratt was never the neere, where there was most neede, it beinge all sent to Brampore to supplie the kings Laskarie [lashkar] (or armie) lycing there against Decan as aforementioned. This place (Mogolca Sara [Mughal Sarai], 6 course) is in the province of Malwa."

After this Mundy saw no more of the famine till his return to Surat over two years later. The entry in his journal runs as follows:—

The 25th May, 1630. About nine a clock wee came to Bereawe (Variao), being 16 course. Leaveing all the carts att the river side, I with some other English went over, and came to Suratt to the English howse, where I made an end of my tedious journey from Agra, from whence I departed the 25th February and arrived heere the 25th May as above said, have gon and travelled 414 corse, vizt.

From Agra to Seedpore (Sidhpur) 284 great corse, att 1½ mile English per corse amounting to miles 426

From Seedpore to Suratt 130 small course, att 1½ mile English per corse amounting to miles ... 172½

Corse 414 makes miles 598½

At my arrivall heere there were but few liveing of those I left heere att my departure, the rest dead with the mortall sicknesse that imedeatly followed the famine. The names of those liveing att my departure are as followeth:—

- +The worshipfull Thomas Rastall, President
- +Mr. John Skibbowe, President
- +Mr. Gore, the Presidents brother-in-law
- ×Mr. Joseph Hopkinson, President
- +Mr. James Bickford
- +Mr. Bichard Barber
- +Mr. Arthur Suffeild
 - Mr. Henry Glascocke
- +Mr. Ralph Rand
 - Mr. John Bangham
- ×Mr. Joseph Readinge
- +Mr. Nicholas Wolley
 - Mr. Thomas Wilbraham
- +Mr. Thomas Smith, Secretary
- +Mr. John Glanvell
- +Mr. Clement Dunscomb
- + Robert Davison, Steward Thomas Ashwell
- × James Woode
- +Thomas Whitelocke
- +Mr. Henry Quarles

Of 21 persons last before named, there are only 4 remaining who are unmarked; 14 of those marke + dyed before my arrivall and 3 with this marke × since. besides the inferiour sort according to this proportion. The like tyme was never seene in India, there being scarce one man in all Suratt-howse (the English factory) able to write or sett his hand to paper (sometymes). Their were only by sicknesse, but the famine it selfe swept away more then a million of the comon or poorer sort. After which, the mortallitie

succeedinge did as much more amongst rich and poore. Weomen were seene to rost their children: men travelling in the way were laid hold of to bee eaten, and haveing cut away much of his flesh, hee was glad if hee could gett away and save his life, others killed outright and devoured. A man or woman noe sooner dead but they were cutt in peeces to be eaten. Thus much by common report (because I was not present). But att my returne I found the countrie in a manner made desolate, scarce 1 left of 10, as by instance of the weavers, for whereas formerly they had brought them (the factors) 30, 40 or 50 corge [score (of pieces of cloth)] a day, they could now scarce gett 20 or 30 peeces; this in Baroach (Broach). Att Suratt none att all, and in Brodra (Baroda) noe factorie att present. In my opinion it will hardly recover it(s) former estate in 15, nay, in 20 years; I meane Guzaratt,"

That Mundy's account is not exaggerated may be shown by a translation from the Badshahnama.

Famine in the Dakhan and Gujarat

During the past year (1629-1630) no rain had fallen in the territories of the Balaghat, and the drought had been especially severe about Daulatabad. In the present year also there had been a deficiency in the bordering countries, and a total want in the Dakhan and Gujarat. The inhabitants of these two countries were reduced to the direst extremity. Life was offered for a loaf, but none would buy; rank was to be sold for a cake, but none cared for it; the everbounteous hand was now stretched out to beg for food; and the feet which had always trodden the way of, contentment walked about only in search of sustenance. For a long time dog's flesh was sold for goat's flesh, and the pounded bones of the dead were mixed with flour and

this was discovered, the sellers were sold. When brought to justice. Destitution at length reached such a pitch that men began to devour each other, and the flesh of a son was preferred to his love. The numbers of the dying caused obstructions in the roads, and every man whose dire sufferings did not terminate in death and who retained the power to move wandered off to the towns and villages of other countries. Those lands which had been famous for their fertility and plenty now retained no trace of productiveness The Emperor in his gracious kindness and bounty directed the officials of Burhanpur, Ahmadabad, and the country of Surat, to establish soup kitchens, or almshouses, such as are called langar in the language of Hindustan, for the benefit of the poor and destitute. Every day sufficient soup and bread was prepared to satisfy the wants of the hungry. It was further ordered that so long as His Majesty remained at Burhanpur 5000 rupees should be distributed among the deserving poor every Monday, that day being distinguished above all others as the day of the Emperor's accession to the throne. Thus, on twenty Mondays one lac of rupees was given away in charity. Ahmadabad has suffered more severely than any other place, and so His Majesty ordered the officials to distribute 50,000 rupees among the famine-stricken people. Want of grain and dearness of grain had caused great distress in many other countries: So under the direction of the wise and generous Emperor taxes amounting to nearly seventy lacs of rupees were remitted by the revenue officers-a sum amounting to nearly eighty krors of dams, and amounting to one eleventh part of the whole revenue. When such remissions were made from the exchequer, it may be conceived how great were the reductions made by the nobles who held jagirs and mansabs.

(Translated from the Badshah-Nama, 1. 362). Elliott, Hist. of India, VII. 24-25.

From which narration we men of later days may draw warning and encouragement and a stimulus to persevere till the industrious cultivator can face a failure of the monsoon without fear of the spectre of famine.

MUGHAL CURRENCY AND COINAGE

PROFESSOR S. V. VENKATESWARA, M.A. KUMBAKONAM, MADRAS PRESIDENCY

The Metallic Currency

Akbar was the founder of the Economic system of the Mughal empire. His currency policy was largely based on that of Sher Shah, but he adopted copper for both the money of account and the standard of value. His reason was that the fluctuations in the value of the precious metals were the least remarkable in the case of copper. The ratio of silver to gold had been 8:1 in the thirteenth century, 7:1 in the fourteenth, and 9:4:1 in the sixteenth century, whereas the ratio of copper to silver had steadily fallen from 73 to 64:1.

The metallic currency of the Mughal emperors consisted of gold, silver and copper. The copper dam weighed 167 rattis 1 and the silver rupee 178.25 grains; 40 dams exchanged for one rupee, and 12 rupees for the gold mohur. The lowest money of account was the cheetel $(=\frac{1}{25} dam)$. There were numerous coins of intermediate value also in circula-

¹ This weight was less than that of Sher Shah's coinage. Mr. Tuomis (Chronicles of the Pathan Kings of Delhi, p. 3)2) estimates Sher Shah's rupee and dam at 178°25 and 328'56 grains respectively. But Sher Shah's coins often exceed this weight. One of his dams weighed 329 grains. The standard of Sher Shah was probably 180 grs. for the rupee and 176 rattis (= 380 grs.) for the dam. The Akbar Shahi rupee and dam were therefore less than Sher Shah's in weight. (See Wright: Catalogue of Coins in the Indian Museum. Calcutta, Vol. II., part 1.)

tion—the half and quarter mohurs; and pieces equal to $\frac{1}{2}$, $\frac{1}{8}$, $\frac{1}{16}$ of a rupee. Coins were round or square in form, and were legal tender to any extent. There were about 70 mints in all, and copper and silver were coined freely subject to a small charge by the state. The coinage of gold was regulated every month by orders issued by the emperor. The details of the minting are given overpage in tabular form:—

¹ Ain-i-Akbari: (Gladwin's Translation) Vol I. pp. 31,32.

COPUER		Cheerels	:		01	30	:	91	13
		Dems	1044	•	80	18	8	18	1170
:	25	Cheetels	:		:	124	:	:	128
	INFERIOR	Dams	:		88	55	38	87	a
/ER		Rapees	920		4	10	2	4	1018
SILVER	:	Cheetels	:		21	18	:	10	12}
	FINE	sma-C	:		22	2	18	ã	27
• ;		Robees	920		31	:	22	60	1006
,		Cheetels	:		184	ao	12}	11	:
	9	Dams	:		18	æ	2	7	23
GOLD		Rubees	:		24	80	\$	69	88
		stado M	100		:	:	:	10	108
			:		:	:	:	:	:
PARTIOULARS			:		:	:	:	:	. i
			:		:	:	:	:	coins minted
			•	1	ml*	-	ç		:
			ullion	barges :-	Materials	Wages	the Stat	. profits	Value of
			(a) Value of bullion	(b) Minting Charges :-			(c) Duties to the State	(d) Merchants' profits	TOTAL
			á	(g)			હ	(g)	

The above figures may be interpreted by taking the coinage of rupees from fine silver as an example. An amount of buillon sufficient to be coined into 1,006 rupees and 274 dams costs in coining on the average 56 rupees 274 dams in mint chargas, duty, and merchants' profits, leaving 950 as the number of rupees obtained by anybody who owned the buillon and presented it for coinage. Buillon which made 1006.7 rupees used to exchange therefore, for its. 950 in money.

Mints

Ain-i-Akbari¹ (1594) Akbar According to the allowed gold to be coined only in four places-the mints of Agra, Ahmadabad, Kabul and Murshidabadwith a view probably to exercising an effectual control over the coinage. The mints of ten other cities also were allowed to coin silver-Allahabad, Ujjain, Surat, Delhi, Patna, Kashmir, Lahore, Multan, Tandah. Copper was coined in these 14 and in 28 other This account of Akbar's mints is given by it is Vost 2 has Fazl. but defective. Dr. discovered a few coins dated 976 or 978 A. H. which were minted at Bahraich, a place omitted in Abul Fazl's list. Mr. Lanepoole was inclined to doubt whether Akbar had coined to any great extent in copper especially as couries and almonds formed the token currency. But Mr. Rodgers has brought the extensive issues in copper both of Akbar and of Jahangir. The coins of the latter were issued mostly in Kashmir and Afghanistan which were evidently health-resorts of the Emperor from the climate of the plains. So plentiful indeed were the copper coins that Shahjahan hardly felt the need for new issues and the copper coins of his But he issued square coins in white time are rare. base metal, perhaps to supersede the Portuguese coins of Sopára 5

Profits of coinage

The profits of coinage were so extensive that Aurangzeb attracted bullion to the mint by imposing

¹ Abul Fazl (ibid.) says that in the beginning of Akbar's reign gold was coined 'in many places.' The object of the restriction is not explicitly mentioned.

2 Journal of the Royal Asiatic Society, London, 1895. pp. 40-43.

3 Lanepoole: Catilogue of coins in the British Muscum. (London).

Introduction, p. xc.

⁴ Journal of the Asiatic Society of Bengal, 1895, pp. 129-193; also 1896,

⁵ See Wright: Catalogue of coins in the Indian Museum, Calcutta, (Vol II., part 2) the descriptions of coins and the plates.

duties on the purchase and sale of silver in the country. He is said to have derived a profit of 11 lakhs a year from his mint at Surat alone. It must be said to the credit of his successors that they did not stoop to debase the coinage in spite of all their political and economical difficulties. They sold the East India Company the right to issue coins at Bombay in 1717, at Madras in 1742 and at Calcutta in 1757. The company's coins were copies of Mughal issues—e.g., those issued by Shah Alam at Murshidabad in 1793.

Features of the coins

The coinage of the Mughal period is interesting from many points of view. The coins of Akbar are splendid specimens of the engraver's art, unsurpassed except by those issued by his son, Jahangir. They display his restless yearning after innovation. gave up the broad thin pieces of the Trans-Oxine model, and adopted the Indian way of coining thick dumpy pieces. He first tried oblong coins with scalloped ends and lozenge shaped 'coins, known as they resembled the arch of a prayer niche. But his eccentricity or love of display led to his issuing square coins on the model probably of those issued in Kashmir and in Malwa. The Kalima on the coins appears in a variety of ways. It is sometimes in wavy pentagon, quatrefoil, triple border or diamond. Sometimes it is in square, triple, curved, inscribed in a triple circle or enclosed in ornamental border. On other coins it is in double square with dots between in sixfoil, or in double foliated or multifoil pentagon. A coin of the Lahore mint

¹ The duty was on "all silver and gold that should be sold by one Hindu merchant to another." which would necessarily "very much prejudice trade" (The Diaries of Streynsham Muster, Edited by Sir R. C. Temple Vol. I., p. 30).

2 Manucci: Storia Do Mogor II. 417. (Irvine's translation)

has a bowman with a veiled woman It probably represents the conquest of Bijapur and the resultant marriage of the Sultan's daughter to Prince Daniyal. Akbar used images very sparingly on the coins-perhaps only on three very rare types in gold. The coins dated in the Ilahi era, with Persian instead of Arabic names of the month and the ambiguous legend 'Allahu Akbar' illustrate his adherance to the Din-i-Ilahi. Jahangir gave up these 'aberrations' of Akbar, but retained the insertion of Persian couplets on his coins. The latter depict him goblet in hand, and the later ones bear the name of Nur Jahan by the side of the emperor's. Alone of all the Muhammadan rulers of India he placed his portrait on his coins. The freak of the emperor is seen in his beautiful 'Zodiacal' coins. Shahjahan's coins large in size, and Aurangzeb's coins are orthodox and monotonous.

Testimony of an English traveller

Chaplain Terry has some fine appreciative remarks about the coinage of this period, and I may be permitted to extract a paragraph. "The coin or bullion brought thither from any place is presently melted and refined and the Mughal's stamp (which is his name and titles) put upon it. The coin there is more pure than in any other part of the world, being (as they report) made of pure silver without any allay [alloy]; so that in the Spanish money, the purest of all Europe, there is some loss. They call their pieces of money rupees, of which there are some of diverse values, the meanest worth 2s. 3d. and the best 2s. 9d. sterling. 4. . . . 3d. is the least piece of silver

Lanepoole, op. cit., Plate V. No. 172.
 See "Akbar and the Fine Arts" by the present writer in the "Indian Review" for 1913.

Review' for 1913.

S Page 119. (Hakluyt Society's Edition).

4 Hence the different rates given by travellers e.g., 2s. 3d. (Roe I. 95),

2s. 6d. (Roe I. 111) and 2s. or 2s. 6d. (Purchas, p. 111) 2s. (Manucci II. 415).

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current in those countries and very few of them to be seen. 1 That which passes up and down for exchange under this rate is brass or copper money which they call pices, whereof three or thereabouts countervail a penny. Those pices are made so elastic and so thick as that the baser metal of which they are made, put to other uses, is wellnigh worth the silver they are rated at. Their silver coin is made round or square, but so thick as that it never breaks nor wears out. They have pure gold coin likewise, some pieces of great value; but these are not very ordinarily seen amongst them."

Money of account—Current money—Standard of value

It should be remembered that though the copper dam was the money of account there were current gold and silver coins of various denominations. There were rupees worth 38 dams in which officers were paid part of their salary. Abul-Fazl says that the best coin of his time had 15 of gold to 1 alloy and the worst coin 1 of gold to 15 alloy. But no coin so base as the latter has come The value of the rupee differed with the down to us. amount of precious metal contained in it. Sir. T. Roe. (1615) and Chaplain Terry mention rupees of 2s. 3d., 2s. 6d., and 2s. 9d. In Streynsham Master's 4 time (1675-80) the newly coined Sikka rupee was at a preof 4 to 6 per cent. About 1697 5 Aurangzeb passed an order to the effect that rupees whose intrinsic value was less than As. 8 should pass current as full weight rupees. Manucci is careful to that the shroffs and bankers were loud in their pro-

¹ Terry is not correct in this statement. Abul Fazi says the lowest piece of silver coined was the sooky (= 1/20 Re.). Gladwin, op. cit., p. 32.
2 Ain-i-Akbari (Gladwin I. 34).
3 For regulations about 'blanching' money and assessing the actual currency see ibid.
4 Diaries of Streynsham Master Vol. I. p. 393. n.
5 Manucci: Storio Do Mogor.

tests and had to be cowed into submission, but he does not give an account of the inevitable application of Gresham's law leading to the speedy disappearance of the full-weight rupees. So too there was some difficulty in selling the gold mohur at its face value. Manucci takes 150 mohurs (small) as worth Rs. 520 instead of Rs. 525. Streynsham Master 1 wrote in 1680 that it was easier to sell mohurs to a private merchant than in the open bazaar. In one of his letters he actually takes the mohur (large) as worth only Rs. 14 instead of Rs. 15. It may be assumed that the current gold coins were sweated by the moneychangers to some slight extent not easily discovered by the common people.

Besides the precious metals, cowries in and Orissa and almonds in Bombay were used as money to a great extent.2 In some parts, e.g. Kashmir, rice was the standard of value. 3 Cowries came from the Maldives and were used for petty transactions from as early as the fourth century. Stavorinus bears testimony to the use of almonds at Surat. Abul Fazl⁵ gives the table:—

> Re. 1 10 Khawan -= 160 or 200 panams 640 or 800 boories 3,200 or 4,000 gundas 12,800 or 16,000 cowries

Pyrard de Laval⁶ (1602) could purchase 20 measures of rice for 12,000 cowry shells. Bowrey 7 found the rupee worth 3,200 cowries. In the eighteenth century there were two kinds of cowries used in Bengal, according to the Seir Mutaquerin. The revenues of

¹ Master I. 501.

Manucci II. 45.

Manucci II. 45.

Ain-i-Akbari: Gazetteer of Kashmerc.

Lanepoole p. xc.

Ain-i-Akbari: Gazetteer of Bengal.

Laval in 'Purchas' (Hakluyt) IX. 56.

Bowrey in 'Master' I. 393 n. and 394.

government were paid in Orissa in the harder sort of cowries that came from the Maldives. The softer sort came from East Africa, and 5,200 of these went to the rupee in Bengal. Cowries were used even in big transactions and seem to have been unlimited legal tender. The East India Company once paid Rs. 500 in cowries in 1680, and there were a large number of women employed by the state for counting cowries, in the declining days of the Mughal empire. As there were such minute pieces of money adapted for the smallest transactions, there were also, at the other extreme, huge pieces of coined gold and silver worth as much as Rs. 1,000 a piece. 2 These big pieces could hardly have served as currency in ordinary times. They were stored in the Imperial cellars and very probably seldom saw the light of day.

Credit Instruments

There were also instruments of credit in use. In the first place must be mentioned the cheques * issued by the government to contractors. cheques were drawn on a local treasury, but the treasury officer there had the power of passing them on for payment to some other local treasury. The usual procedure was to sell the bill for a consideration to some banker. In any case the officer who actually honored the cheque could get some commission or bribe for himself. Secondly, there were the hundis or bills of exchange issued by bankers. These enabled people to transmit money from one place to another free of cost without the intervention of the precious metal. The merchant issuing the hundi had a branch shop in the locality to which money was to be sent, or had a fellow-tradesman

Diaries of Master' II. 221.
 Hawkins: Purchas III. 31.
 Blochmann's note in Ain-i-Akbari I. 184. (Translation by Blochmann and Jarrett).

there to accommodate him by honoring his bill. Thirdly, there were the promissory notes and receipts in advance given by the state employees whose pay was in arrears so often. Soldiers assigned their pay for a small fraction of 20 or 25 per cent 1 of the amount, which was actually paid by the village shylock. Fourthly, there were the transactions by barter of which there are numerous instances in all the books. One of the greatest difficulties of the early European merchants in India related to their ignorance of the kind of commodities Indians would take in exchange for those that they had for sale. In 1676, for instance, Streynsham Master paid Indians 'half in money and half in goods'. But in 1680 the merchants would not take the East India Company's broad cloth and lead and had to be paid 'in current money or in treasure'. 2

Economic ideas of the time

There is evidence of a great deal of money and bullion being hoarded by the people. This hoarded wealth was buried underground and was unearthed now and then to become the property of the crown. At least one traveller has left on record that Indians were under the sway of the mercantilist doctrine which possessed the minds of Europe in this period. "It is lawful for any nation to bring in silver and fetch commodities, but a crime not less than capital, to carry any great sum thence." But Terry s who made this remark does not tell us whether any occasion arose for the export of silver from India. There is no doubt that throughout the period of our study the balance of trade was always favorable to India 4 and had to be restored by actual imports of specie

Seir Mutaquerin III. 35.

Master II. 223.

Purchas IX. 23.
Manucci Storia II. 418. Hawkins in Purchas III. 42, 43.

into this country from abroad. Nor do I find any authority in Indian writings for the statement that export of silver was visited with capital punishment. the traveller was tacitly assuming in the case of India those conditions and circumstances which existed in his own country. Perhaps he accounted for the natural inflow of bullion into India by the political principles by which the governments in Europe sought artificially to attract specie into their lands. In any case, it is a relief to turn from the primitive economics of hoarding and mercantilism to any traces of true currency policy in the indigenous writings of the time. "Gold, my son, is fit to be enjoyed. For hoarding, gold is no better than stone." This was an old Indian saying which expressed the common sense of the ordinary people, for Badauni who quotes it was rather a pious Mussalman than a man of the world, much less an If hoarding there was, it was due less to economist. economic ignorance than to the prevalent desire for ornament and to the general lack of security habitually assumed by the people. This will be clear to those who bear in mind that in spite of the abundance of gold and silver, in spite of the facilities for converting them into current coins, the rate of interest remained so high as 15 or 20 percent.2

Muntakh-ab-ut-Tawarikh of Abdul Khadir Badauni, Vol. II. p. 75 (Asiatic Society of Bengal's publication).
 Diaries of Streynsham Master I. 137.

SIZE OF LAND HOLDINGS IN THE BOMBAY PRESIDENCY'

THE HONBLE MR. G. F. KEATINGE, C.I.E., I.C.S. DIRECTOR OF AGRICULTURE, BOMBAY PRESIDENCY

The subject of this paper on the size and constitution of land holdings in the Bombay Presidency is usually referred to as "the sub-division of holdings", but it presents two distinct features. The first is that with the increase of population many of the holdings tend to become very small, and the second is that the holdings, whether large or small, tend to become broken up into a number of separate plots, often situated at a considerable distance from each other. These two tendencies differ both in their origin and in their results, and it is necessary to distinguish carefully between them. I therefore propose to call the first sub-division of holdings, and the second fragmentation of holdings.

Sub-division of holdings refers only to the size of the holdings. It must tend to occur in any thicklypopulated country when the number of persons dependent directly on the land increases, but the tendency is found to bear a very direct relation to the law of inheritance in force in the country. In this Presidency

¹ This paper was read before the conference held by the Board of Agriculture in India, at Poons, on the 10th December, 1917. It was printed for official use and circulated prior to the meeting to members of the Board and visitors.—[Ed.]

it is governed by the Hindu law of inheritance which has, I believe, the most fissiparous tendency of any known law of inheritance, giving each male member of a family an equal share of the family property from the time of his birth, and allowing him to claim a partition of his share at any time. In some countries the idea of considerable sub-division of land finds favor as tending to a widespread and equitable distribution of wealth and opportunity amongst a large number of persons, and as giving to a large proportion of the people who cultivate the land a interest in and attachment to the land. It will thus be realised that there are a considerable number of general arguments in favor of the sub-division of holdings, and it is only when this sub-division becomes very excessive that remedial action is clearly indicated.

Fragmentation of holdings, on the other hand, is an unmitigated evil for which, I believe, no advantages can be claimed. It consists of the splitting up of a single holding into a number of separate plots, often situated at a distance from each other. It arises not directly from the Hindu law of inheritance, but from customs connected with the Hindu law of inheritance, and has its origin in a desire to provide an automatic method of securing a mathematically accurate partition of a holding amongst the heirs. Thus supposing that a man dies holding nine acres of land divided into three plots of three acres each, and leaves three sons, it might be hoped that each son would take a solid plot of three acres, settling with the others in money the balance arising from any difference in the quality of the different plots. This, however, seldom happens: but, on the contrary, each plot would be split up into three sub-plots of one acre each, and a sub-plot in each place assigned to each heir, so that the three hold.

ings made out of the original nine acre holding would consist each of three separate plots of one acre each. Nor does the inconvenience end there, for the partition is effected in such a way as to secure an equal proportion of good and bad land in each plot, often leads to a division into long narrow strips. the case of rice fields consisting of a terraced slope this fragmentation is very marked, for each heir will aim at getting a share on each terrace, and sometimes there is an arrangement for the heirs to take each share, turn and turn about, so that the property owned by each man in any plot of land amounts to the right of temporary cultivation rather than the ownership of the land. This custom of fragmentation bears to the Hindu law of inheritance much the same relation that the English custom of primogeniture bears English law of entail, and together the Hindu law and custom have resulted in splitting up the land into an enormous number of plots in which a large proportion of the population have some share, however small, just as in England the law and custom taken together have resulted in the concentration of compact estates in the hands of a very few persons. This custom of fragmentation is not peculiar to India, but occurs also in France, the country where the law of inheritance most closely resembles the Hindu law, with the result that in some localities in France the size of an individual share has been reduced to single vine or a single tuft of lucerne grass. In Switzerland also and parts of Germany the evils of fragmentation were a matter of common experience.

In calling attention to the excessive sub-division and fragmentation of the land in this Presidency it may be stated, once and for all, that there is no intention of opening the discussion of the relative economic advantages of large and small farming. The

spirit of Hindu law and the spirit of Indian agriculture favor a wide distribution of the land and its cultivation by peasant-farmers, and it is not in any way desired to suggest that the formation of large estates, worked on a capitalistic basis, would be more suitable or desirable for the people of this country either from a social or economic point of view. All that I desire to make clear is that in this Presidency the principle of sub-division and fragmentation has been pushed so far that the land has been parcelled out in such a way that in many cases grave difficulties are presented to its effective cultivation, even by existing methods. The distribution of the land amongst the peasants is such that a large and increasing proportion of them have not got an economic holding, and this presents a fundamental obstruction to the introduction amongst them of improved technical methods organisation calculated to increase the quantity and value of the outturn and to cheapen its production. It is not with a view to interfere with the fundamental conception of the peasant-farmer that any suggestions are made, but in order to render possible the creation and maintenance of small but economic holdings on which a peasant-farmer can take adequate advantage of the natural facilities which exist, and improve his technical and economic outfit to an extent that will enable him to meet the competition of farmers in other countries, and so to maintain his family in comfort and his holding intact for posterity. It is with a view to make suggestions of this kind that I have drawn up three statements which I attach as Appendices to this paper: Appendix I, showing the extent of sub-division and fragmentation of holdings in this Presidency, and the disadvantages resulting therefrom; Appendix II, giving an account of similar phenomena in other countries and the remedies that have been applied there;

and Appendix III, making definite proposals for remedial action in this Presidency.

For a general discussion of the adverse effect which this excessive sub-division and fragmentation of holdings have upon the status of the cultivators and the production of crops I would venture to invite reference to pages 50 to 55 of my Rural Economy in the Bombay Deccan, and for a more detailed statement of the facts to Appendix I. In this Appendix I have attempted to give illustrations, taken from various points of view, of the existing state of affairs in the Konkan, Gujarat, West Deccan and East Deccan. In the Konkan no attempt has been made to select extreme cases, and the cases cited may be taken as typical. Much more extreme cases might have been found, and Mr. J. A. Madan informs me that the size of individual plots in the Ratnagiri District is sometimes as small as a quarter of a guntha (1 guntha equals one-fortieth of an acre), and that he knows of a case where a holding of 2½ gunthas was partitioned amongst five brothers, so that each brother got a holding of half a guntha, and each of the five brothers cultivated each of the five plots of half a guntha in rotation. Such extreme cases amount to an absurdity, but even taking the facts shown in case No. 1 of Appendix I, the serious hindrance to effective production may be realised. do not propose to refer to the difficulty of maintaining records of these innumerable sub-divisions, of collecting revenue from and keeping accounts for each of these minute plots, or of the task of separately demarcating them, as is being attempted. These are matters which merely cause difficulty to Government, and it is to the difficulties which are caused to the cultivators that I wish to direct attention. The essential thing in rice cultivation is to have the water under control, to get water from streams when rain is scanty, and to

drain off the surplus water when rain is excessive. With the present distribution of the land in tiny plots amongst numerous holders with divergent interests this becomes impossible, and consequently great loss results to all concerned. Improvements cannot undertaken; actual tillage operations become difficult; fencing is out of the question; no man can live on his farm when it is scattered into many plots, nor can he guard more than one plot at the same time; causes of friction between neighbors inevitably arise and often develop into standing fends. These are some of the necessary attendant evils to which, I think, anyone who is closely connected with the country-side will bear witness. In the case of elaborate improvements such as the reclamation of salt lands, which depend on the maintenance of a substantial outer embankment and a system of sluice gates and drains, it often happens that the work undertaken by one man when the original holding was intact is allowed to go to pieces for want of repair when the holding becomes sub-divided, so that everyone concerned is a loser.

In Gujarat the problem differs greatly in different tracts. In the parts that grow cotton and jowari the situation is not usually acute, as is shown in cases Nos. 7 and 8, but in actual or potential garden lands the position is very bad. Cases Nos. 9 and 10 are admittedly selected as extreme cases, but they illustrate what is common in large areas all over Gujarat. Such conditions inevitably reduce production, and in extreme cases put the land out of cultivation, as is shown. They put a stop to all permanent improvements, and produce an uneconomic situation which reacts most unfavourably on the cultivators.

The Deccan is divided into West Deccan and East Deccan. In the West Deccan the pressure of the

population on the cultivable land is usually great, and sub-division and fragmentation are marked, as shown in cases Nos. 11 to 14. In the East Deccan the pressure is usually much less as is shown in cases Nos. 15 to 71.

To sum up the evils of excessive sub-division and fragmentation, they may be stated as follows:—

- (a) They impede current cultivation and waste time.
- (b) They prevent permanent improvements.
- (c) They prevent a man from living on his farm.
- (d) They prevent any orderly organisation of labor or capital.
- (e) They frequently result in second crops not being grown.
- (f) They sometimes send land out of cultivation altogether.
 - (g) They cause enmity amongst neighbors leading to litigation and permanent feuds.
 - (h) They produce a generally uneconomic situation.

I quite realise that when population presses heavily on the cultivable land, holdings must be small, and that in some cases there is a good cause for a strictly limited amount of fragmentation, as in the Konkan between the rice and the warkas lands, in parts of Gujarat between rice, garden and dry lands, and in parts of the Deccan between the dry and patasthal lands. But I would submit that throughout the Konkan and over a large part of the Deccan and Gujarat sub-division and fragmentation have gone much farther than is reasonable, and are exercising a very prejudicial influence on the cultivation and development of the country. It is true that in parts of the Deccan and Gujarat this tendency is not yet far developed, but it

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will become so if it is not checked; and it is much easier to check it before the evil has gone very far. The fact even that there are a large number of holdings too small to support a family need not of itself be a cause for alarm. The holders of such small holdings must necessarily work part of their time for others as laborers, and in the case of garden lands with irrigation facilities their holdings may be more in the nature of "allotments"; but when it is found that the great majority of holdings are of these small dimensions and further that they are fragmented in a way for which there is no economic justification, and that the great bulk of the land is thus put outside the possibility of effective cultivation or economical organisation, then, I would submit, the necessity arises for some remedial measures. This state of affairs already exists in a large part of the Presidency, and will come into existence in the remainder unless timely action is taken.

In Appendix II, I have attempted to show how in other countries similar causes have produced similar results, and the remedial action which has been adopted to meet the difficulty. I have not by me sufficient materials to make this paper complete, but have quoted my authorities for the statements made. I think that a perusal of Appendix II will make it clear that in other countries—

- (1) Excessive sub-division and fragmentation of holdings have directly resulted from laws of inheritance which on the death of the father distribute the land amongst the children.
- (2) Though in several countries the peasants have made strenuous efforts (amounting in some cases to an agreement to ignore the law of the land) to preserve the holdings

- intact, they have failed to accomplish their object adequately.
- (3) Remedial legislation has been found necessary and has been adopted in a large number of the most progressive countries to remedy the evils caused by their law of inheritance.
- (4) In some countries where the law of inheritance does not favor sub-division the new legislation has aimed at the partition of large estates, while in other countries where the law of inheritance does favor sub-division the new legislation has aimed at the enlargement and consolidation of the existing small holdings. At first sight it may seem that this involves the acceptance of two opposing principles, but in reality this is not so, since the object in either case is to create and to maintain reasonably sized and reasonably situated economic holdings for peasant-farmers.
- (5) To secure this end the legislation has been drastic, involving the principles of—
 - (a) compulsory expropriation,
 - (b) the compulsion of all concerned to accept restripment when a certain fraction of the land-holders desire it, and in extreme cases even without the desire of a certain fraction,
 - (c) the subsequent indivisibility of the reconstituted holding,
 - (d) the exemption of the reconstituted holding from seizure for debt, involving the condition that loans cannot be raised on the security of the holding,
 - (e) not allowing the reconstituted holding to be combined with other holdings.

(6) In all cases the extreme benefit that has resulted from such remedial measures is clearly recognized. In some cases the value of the land is said to have trebled, in other cases to have increased over 60 per cent, and there is a general concensus of opinion as to the increased yields of crops obtained by reason of these measures and as to the reduction in the cost of production.

If, therefore, the facts and the arguments, detailed above, are accepted, it only remains consider what action can be taken in this Presidency to remedy the sub-division and fragmentation of holdings which exists in a degree beyond that of any other country mentioned, with the possible exception of Japan. There can be no doubt that here as elsewhere the trouble is caused by the law of inheritance; and as the Hindu law of inheritance is more thorough in its dividing tendency than the law of inheritance: in any other country, so its results on the size and distribution of the holdings are more marked. In former times when there was no pressure of population on the soil, and when waste land was available for all who wanted it, no serious inconvenience was experienced in India or elsewhere from such law of inheritance: but, with the increased pressure of the population on the cultivable land, the situation is quite different. and the present state of the holdings constitutes a serious and increasingly serious handicap. No industry could prosper under such conditions, and it is safe to say that if the mill industry in Bombay City were lettered in this way it could not exist. Fortunately for the mill industry it rests on a joint-stock basis. and the capital and management of a mill remain intact, however much the component units of the

capital may become divided. In peasant agriculture the joint-stock principle can afford no help, and any expectation that individual or co-operative effort can effectively succeed in neutralising the effect produced from generation to generation by the law of the land is, I fear, doomed to inevitable disappointment.

It would be easy to propose drastic measures for the reconstitution of holdings, conceived on the lines that have been found successful in other countries, involving some measure of expropriation and compulsory restripment: but it is certain that such a proposal would be considered as an outrage to Hindu sentiment and would meet with strong opposition. The landholders, large and small, are, however, fully aware of the extreme inconvenience caused to them by the existing conditions, and I believe that they would gladly welcome any measure which offered a remedy without introducing the element of compulsion. present if a man owns five acres and has five sons the law compels him to give one acre to each son, though he may be well aware that such an arrangement is quite unsuitable and uneconomic. In other words the law makes a will for a man which, if he made it for himself, would cause him to be considered, and rightly considered, a fool. My proposal is that the landholder shall be enabled to escape from this tyranny if he and all concerned wish it. accordingly prepared a bill to enable holders of land constitute economic holdings, and I append Appendix III a brief statement of "objects and reasons". It may be argued that comparatively few landholders would be in a position or would care to avail themselves of this provision. This may be so at first, but in the case of holders of self-acquired land over which

¹ Owing to reasons of space it has proved impossible to print the draft bill with this paper. It appeared in the official print circulated prior to the meeting.—[Ed.]

they have full power of disposition, I believe that a fair amount of persons would be glad to avail themselves of the opportunity of creating permanent economic holdings for their descendents; and it must be remembered that in the course of a century much of the land falls at one time or another into the category of self-acquired land. So also in the case of a man with two or three sons and with other land or other property besides the land which he wishes to create into an economic holding, all the parties concerned might well be glad to come to an arrangement of this nature.

No element of compulsion is involved in the proposed bill, which is of a purely permissive nature. It may be argued that, in the anxiety to introduce no compulsion, the bill is so weak that it would be inoperative. In that case at least no harm would have been done. I do not think that any striking change would immediately result from the passing of this bill, but I think that it goes as far as public opinion in its present state is prepared for. I believe that it would be operative and beneficial from the beginning, that it would help to mould public opinion in the direction—of recognising the fundamental necessities of agriculture, and that in the course of a century it would produce marked results.

I have talked to a large number of landholders and educated Hindus on the subject, and I believe that a permissive act of this nature would be generally welcomed, though I fear that even this limited measure of relief would be opposed by a certain number of rigid Hindu lawyers. I would point out, however, that modifications of Hindu law are from time to time effected on the motion of Hindus, and that this bill merely applies to land the principle of indivisibility which for physical reasons must be applied to objects such as a horse or a machine. It is physically possible

to divide up a guntha of agricultural land into a number of smaller plots, though economically it is obviously foolish to do so; and it is still more foolish for the law to compel a man to do so. In the case of town houses also I believe that it is common in Hindu families for one brother to take the family house entire, without any attempt at division.

In conclusion, I would venture to express the opinion that the creation of more economic holdings is a fundamental necessity for agriculture in the Bombay Presidency, and by means of the proposed bill a start can be made in the economic reconquest of the land.

APPENDIX I

EXAMPLES OF THE EXTENT OF SUB-DIVISION AND FRAGMENTA-TION OF HOLDINGS IN THE BOMBAY PRESIDENCY

The extent of sub-division and fragmentation of holdings in the Bombay Presidency differs considerably in the different tracts. It is greatest in the rice lands of the Konkan and Ghat strip of the Deccan, where the conditions of rice cultivation and the value of the rice crop tend towards the existence of small holdings, and where the pressure of the population on the area of rice land, and in particular on the fertile coast strip, accentuates the evils of excessive sub-division and fragmentation.

A .- KONKAN AND GHAT STRIP OF THE DECCAN

I propose to state typical cases showing from different points of view the extent to which sub-division and fragmentation have proceeded in the districts of Kanara, Ratnagiri, Kolaba and Thana.

Case No. I. Survey Nos. 1 to 40 of Uppinapatan, taluka Kumta, district Kanara

This area of 52 acres was selected simply because it was a nice compact block of land with excellent natural facilities, which might have sufficed for 3 or 4 rich holdings, or 6 or 8 fair holdings. In point of fact it is divided up into 139 separate plots held by about 50 landholders. I submit a map of the land (See p. 194) and a tabular statement showing areas,

number of plots, number of mulgeni permanent, leases, number of simple leases and number of mortgages.

Survey No.	Area		Asse	ssmer	t dars, i. c.	- Number . of mulge-	Number of simple	Number of mort-
					landhol- ders	landhol- ni leases		gages
	. A	Θ.	Rs		•			
1 (Part)			10		0 8	•••	•••	1
3	0		8			•••	•••	1
4 5	1 0	19	9		-	•••	•••	•••
<i>5</i> 6	. 0	38 31	9		-	. •••	•••	•••
7	, 0	26	3			•••	•••	•••
8	, 0	20 34	5 5			1	1 2	1
9	1	29	5	8 0	•	1	3	• •••
10	i	20 1	; 7	8 0	• •	•••	9 .	1
11	2	28	14	0 0	_	•••	• :	2
12	l ī	14	8	0 0	•	•••	4	2
18	Ō	14	ŏ	2 0	•		***	•
14	, 0	9	ĭ	0 0	_	•••	 1	ï
15	1	14	7	0 0	_	•••	2	-
16	1	1	4	0 0		1	ĩ	2
17	; 0	35	. 4	0 0	8	1	•••	ī
18	· o	28	1	5 0	4	•••	•••	1
19	1	9	2	8 0	7	•••	1	•••
20	0	89	; 8	0 0	1	•••	•••	1
21	1	5	2	70	8	•••	2	•••
22	1	6	4	12 0	7 .		8 1	1
23	1	1	6	0 0	8	•••	2 ,	1
24	0	25	4	50	7	•••	8 .	1
25	1	6	5	8 0	8		2	1
26	1	8	. 42	12 0	· 7	•••	7	1
7	1	4	5	0 0	4	•••	4	1
28	1	5	5	10	; 7 ·	••• !	2 ,	2
9	1	9	. 5	8 0	4	1	8	1
0	1	7	. 4	0 0	, 1	!	`••• i	•••
11	0	19	3	0 0	1	1	!	•••
2	1	23	7	0 0	1	1	1 '	•••
3	1	11		10 0	9	•••	•••	2
4	1	4		12 0	8	1 ,	1	1
5 6	0	88	5	0 0	1	'	1 :	•••
7	1	17	7	0 0	. 2	2	•••	•••
8	0 1	11 1	5	8 0 0 0	2	1	•••	1
9	_	_	. o . 5			1	···	1
0	1	5 2	6	8 0 0	9 2	•••	6	•
	1	D .		0 0	Z	••• ;	2 !	***
Total	52	1	199	14 0	189	9	56	28

^{*}Current rents are about 10 times the assessment.

The number of Kabjedars (landholders) entered against each survey number represents the number of separate plots into which the land is divided. The same men, however, own land in several survey numbers, so that the actual number of owners is less, being about 50. In another way, however, the fragmentation is even greater than the figures in-

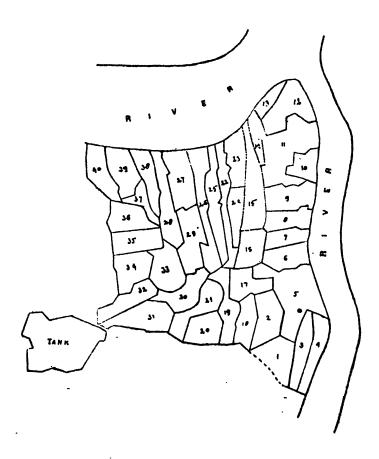


FIG. 1. MAP OF UPPINA PATAN. CASE No. 1.

dicate, e.g., in Survey No. 1 the number of shares shown is 8; but in reality the field is divided into 18 plots, each sharer cultivating 6 plots annually, and moving on to another 6 plots the year after, and so on.

The following details regarding two of the survey numbers give a good idea of the fragmentation:—

Survey	No	. 7.	garden	land	growing	cocoanuts:-		
-		-	_		8	Gunthas		
, Du	Sub-divisions— 1. Ganpu Dodda							
	1.	-	12					
	2.	Gan	1					
	8.	Gan _l Gan _l	21					
	4.	7 1 1						
	5. Mahabalu Mari							
	6.	Ram	a Anapa	Naik	•••	21		
	7.	Maha	balu Ma	ıri	•••	1		
	8.	Shrie	lhar Ma	njanath	a Shanbog	81/2		
					Total	26		
Survey	No	. 33	rice l	and:-	-			
Sub-						Gunthas		
	1.	Mah	alaxmi <i>k</i>	om Sad	lashiv Nai	k 8‡		
	2.	Tuls	kom Sł	iiv	•••	42		
-	8.	Time	na Dam	gauda	•••	42		
	4.	Mah	abalu Ma	ari	•••	6		
	5.	Gani	pu Dodda	a.	•••	81		
	6.	-	pu Bira			18		
	7.	-	chander	Sababl	hatta	21		
	8.		Vaikan			-•		
	υ.	170670			hna Pai	7 1		
	9.	Kup	oa Marag	_		1		
				То	-	acre 11 gunthas		

Total 1 acre 11 gunthas

A cultivator can sometimes lease land contiguous to his own holding, and in this way some temporary unification of the land is effected, though it does not go very far. The following gives a typical case of the area actually cultivated by one of the most substantial cultivators in the village, viz.:—

Ganpu Bira cultivated 12 acres of rice land, of which he owns 3 acres and hires 9 acres: the 12 acres which he cultivates is divided into 21 different plots.

Physical condition of the land

The whole of the land is rice land, except that on the edge of the river a few fields contain a certain number of cocoanut trees which are badly looked after and not irrigated. There is a tank in the jungle close by which, it is stated, formerly provided sufficient irrigation water to grow a second crop of waingan rice (i.e., hot weather rice) or sugarcane on practically the whole area, to which it was conducted by a channel round the upper contour of the field. The tank is now much silted up and the channel out of order. Rice is

grown in the monsoon, and afterwards there is enough water for about 4 acres of waingan rice and 2 acres of sugarcane. In the absence of a water channel this water runs down to a low part of the field and is lifted once and in some cases twice on to the sugarcane land.

It was obvious that the following improvements were needed:-

- (1) The tank required clearing of silt or to have the bund raised.
- (2) The water channel needed repair so that the water could be taken to any part of the field by gravity.
- (3) Some embankments against flood water from the river were needed.
- (4) The land needed proper fencing against wild animals from the adjoining jungle, which do much damage. Having the river on two sides, it needed fencing on only two sides.
- (5) The whole needed to be properly laid off into level plots of reasonable size, so as to admit of easy cultivation, instead of being divided into very small and irregular shaped plots, with bands in between, which occupied an excessive amount of space.

On account of the excessive sub-division and fragmentation of the land it is hopeless to contemplate the possibility of any such improvements.

Case No. 2—Survey Nos. 2, 4, 5, 6, 7, 8, 13 and 26 of Shirgaon, taluka Ratnagiri, district Ratnagiri.

Case No. I refers to an area which is held almost entirely by cultivators. In some parts of the Konkan the bulk of the rice land is in the hands of non-cultivating landlords. Naturally in such cases the holdings tend to be larger, and the fragmentation less, but this case which occurs at Shirgaon, where the Government Farm is situated, gives an instructive example of the way in which such holdings are becoming subdivided and fragmented. The area consists of a block of good rice land. It will be noticed that one holder has a nice block of 6½ acres of rice land; but most of the holdings are badly split up, as can be seen from the map and statement. This case is intended to indicate merely the extent of fragmentation of this class of holdings.

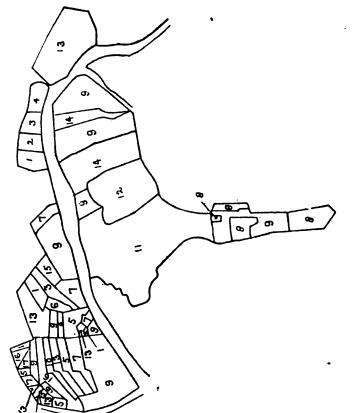


Fig. 2. Map of Shrigaon Case. No. 2.

BLOCK OF RICE LAND CONSISTING OF 8 SURVEY NUMBERS IN SHIRGAON, RATNAGIRI TALUKA, AND DIVIDED INTO

17 SEPARATE HOLDINGS

II SEPARATE NO	DING		
Holdings	ı	a of ding	Number of separate plots
	Acres	Gun-	
1. Narayan Balshastri Agashye	0	341	8
2. Sadashiv Balshastri Agashye	0	187	1
8. Kashinath Balshastri Agashye	0	38	2
4. Raghunath Balshastri Agashye	0	20	2
 5. Purshotam Ramchandra Apte 	1	14	5
6. Vasudeo Keshav Apte	0	71	1
7. Raoji Chintaman Bhat	1	80	5
8. Keshav Sitaram Damale	1	103	4
9. Vishnu Kashinath Damale	6	89 1	9
10. Sona Govind Daphale	0	14	1
11. Laxman Raghunath Joshi	6	171	1
12. Shrikrishna Nilknath Joshi	1	821	1
13. Karmarkar brothers and Pandu Gharoji Shaityo	8	293	7
14. Harbhat Sakhanabhat Marathe	2	20½	2
15. Narayan Gharoji Shaitye	0	187	1
16. Pandu Gharoji Shaitye	0	854	3
17. Tukaram Ramji Shaitye	0	7	1
Total	80	17‡	49

Case. No. 3

The attached map merely indicates the extent of the fragmentation of three large holdings in Kane village, taluka Pen, district Kolaba. Holdings Nos. 1 and 3 belong to agriculturists, holding No. 2 to a non-agriculturist.

STATEMENT SHOWING DIFFERENT HOLDINGS HELD BY THREE DIFFERENT KABJEDARS IN THE VILLAGE OF KANE,

TALUKA PEN

No.	Name of Kabjedar	Reference to survey number on the map in which his holding exists
1	Ganoo Chang Patil	8, 5, 6, 29, 31, 66, 67, 74, 86, 102, 105, 115 and 38.
2	Mulchand Ge.naji Shet	8, 9, 13, 14, 15, 16, 21, 23, 24, 27, 29, 32, 34, 35, 36 38, 39, 41, 42, 43, 50, 55, 56, 59, 61, 62, 63, 64, 65, 67, 68, 69, 70, 72, 78, 81, 82, 83, 84, 85, 91, 92, 96, 97, 100, 102, 103, 106, 109, 110, 111 and 113.
8	Pavsya Kal Patil	2, 17, 32, 61, 62, 63, 67, 85, 86, 102 and 107.

Case No. 4-Nehuli village, taluka Alibag, district Kolaba

The following statement merely indicates the extent of sub-division of holdings in a typical village, showing the holdings of agriculturists and non-agriculturists separately. The village of Nehuli, taluka Alibag, district Kolaba, was selected because practically all the occupied land in the village is rice land, less than 4 acres out of 125 acres being warkas (i.e., dry crop) land. It will be seen that the average size of a holding held by an agriculturist is only 2½ acres, and by a non-agriculturist 3½ acres. Amongst 24 agricultural holdings one is large, 3 or 4 fair in size, and the rest very small, 9 being less than one acre. Amongst 19 holdings of non-agriculturists one is large, 5 fair in size, and the rest very small, 8 being less than one acre.

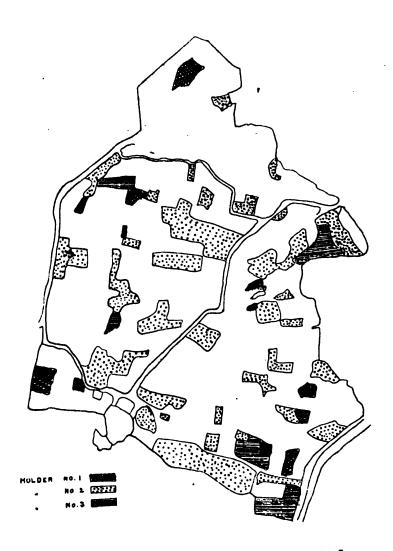


FIG 3. MAP OF KANE VILLAGE. CASE No. 3.

AGRICULTURISTS' HOLDINGS NON-AGRICULTURIST'S HOLDINGS

	Holding No.	Acres	Gunt- thas.	I	Iolding No.	Acres	Gunthas	
	1	8	89		2	9	6	
	7	6	7		8	4	$27\frac{1}{2}$	
	8	4	87		4	7	201	
	9	. 2	18		_	-		
	10	8	28		5	2	88	
	11	2	4		6	0	94 1	
	12	1	84 .		14	2	28	
	18	0	21		17	0	27	
	15	18	17			_		
	16	2~	· 5		18	1	6	
	28	2	22		19	0	89	
	24	0	17 1		20	1	2	
	25	0	4		21	21	88	
	26	1	101	-	22			
	27	0	13			6	0	
	80	0	87		28	0	88	
	81 -	1	25		2 9	1	15	
	82	0	2		35	0	30	
	88	0	251			_		
	84	0	51		86	0	$29\frac{1}{2}$	
	87	0	12		40	4	16	
	38	7	281		41	0	851	
	39	1	11	•	42	0	36	
	48	1	38					
ota	l 24	56	32	Total	19	67	81½	
ho	ldings			ho	ldings			
					•		1	

To Average holding about 21 acres Average holding about 32 acres

Case No. 5—Badlapur village, taluka Kalyan, district Thana
ASSORTED HOLDINGS SHOWING EXTENT OF SUB-DIVISION
AND FRAGMENTATION

Name of holder	Area	held	Assessment	Number of separate plots
·	Acres	Gunthas	Rs. a. p.	
Chintaman Hari				i
(Sowkar)	48	6	129 0 0	53
Vishnu Raghunath Vaidye	ı.			
(landlord)	67	0	187 0 0	38
Raoji Gopal Patil	1	9	140	6
Raoji Raghu Kulkarni	6	80	88 0 0	8
Rama Undriya Patil	24	0	22 0 0	

The land referred to in the above statement is mostly rice land; but even the warkas (sloping dry-crop land) is much split up; e.g., Survey No. 179 (area 25 acres—assessment Rs. 13) is split up into 22 sub-divisions. It grows only grass.

Case No. 6—Karla village, taluka Mawal, district Poona,
(Typical of rice tract immediately above the Ghats)
ASSORTED HOLDINGS SHOWING EXTENT OF SUB-DIVISION
AND FRAGMENTATION

Name of holder	Area held		Assessmer			Number of separate plots
	Acres (Junthas	Rs.	a.	p.	
Bhika Tikaji Marwadi (Sowkar).	60	0	117	0	0	27
Genu Sakhada (Cultivator)	2	27	4	11	0	8
Chima Vithu (Cultivator)	2	81	12	0	0	5
Chima Jogoji (Cultivator)	16	6	27	6	0	7
Laxman Sakharam (Cultivator).	2	85	5	5	0	6

Most of the land shown in the above statement is rice land, but some bits of dry crop land are included.

B.—GUJARAT

Case No. 7—Althan village, taluka Chorasi, district Surat Area—Acres 694. Assessment—Rs. 4,384.—Landholders 99, of whom 54 are cultivators and 45 are non-cultivators, which gives an average of 7 acres per holding, or ignoring non-cultivators, 13 acres per holding.

The largest non-cultivators' holding amounts to 86 acres in 23 separate plots.

The largest cultivator's holdings are-

- (1) One of 41 acres, in 9 plots, the largest plot being 23 acres.
- (2) One of 35 acres, in 8 plots, the largest plot being 17 acres.
- (3) One of 26 acres, in 8 plots, the largest two of which are 6 and 5 acres respectively.

There are a good many small holdings of from 2 to 7 acres, but most of the holders of these manage to hire other land. In a few cases fragmentation has reduced the size of plots to \frac{1}{2} acre, but such cases are rare.

The village has heavy black soil and is a dry crop village growing cotton and jowari. A good cultivator aims at cultivating from 15 to 20 acres with one pair of bullocks, and a fair proportion of the cultivators secure this amount of land; so it will be recognised that from the economic point of view sub-division of land has not yet gone to any disastrous lengths. As regards fragmentation it will be noticed that it is considerable, and is certainly prejudicial, but the land is fairly level dry crop land, where there is no question of irrigation or garden cultivation, and comparatively little opening for permanent improvement. In such a case provided that the individual plots amount to 3 or 4 acres, and are not too small to admit of convenient tillage operations, the loss caused by fragmentation is relatively small. In the main this is the case here.

Case No. 8—Village Mangob, taluka Chorasi, district Surat Area—153 acres. Assessment—Rs. 3,949. 74 landholders of whom 14 are non-cultivators and 60 cultivators.

Largest non-cultivator's holding, 19 acres in one plot with a well. Largest cultivator's holding, 14 acres of dry crop land in one plot.

The soil in this village is lighter than in case No. 7 and there are 125 acres of garden land growing vegetables, ginger, chillies, etc. The rest is dry crop land, growing cotton and jowari. It will be seen that in this village the sub-division and fragmentation of the land is greater than in case No. 7. This is connected with the existence of garden land, and it is in such land that it is most pronounced, e.g.:—

Acres Gunthas

Survey No. 69— Area 7 4 divided into 4 plots. Survey No. 24— ,, 9 5 divided into 7 plots.

The people say that as the garden land is sub-divided the rights in the old wells are also sub-divided, and the holders of rights in a single well repair the well jointly. This works fairly well up to a certain point, but they say that the sub-division of the garden land certainly checks the making of new wells, and very few are now being made, though there is plenty of suitable land where they might be made with advantage if the land was not so sub-divided.

Case No. 9

In the garden villages of the Bulsar and Jalahpur Talukas of the Surat District, where the pressure of the population on the land is greater, the sub-division and fragmentation are much more marked. The following statement gives details for some villages where it is very acute:—

	1		vated lassified	area l		nber hold		Averag	e hol-
Name of Village and assessmen			Dry crop	Rice	Non-cultiva- tors	Cultivators	Total	Holder	Cultivator
	1		sar Ta	luka				Acers	Acres
Pardi Sandhpur		246	47	2	33	100	133	2.14	3.85
	Rs. 3,146								!
Mograwadi	Acres 538	173	333	32	38	122	150	3.28	4.41
	Rs. 3,335								
Bhagda Vada		101	1,186	236	122	32 L	443	3.43	4.74
	lts. 5,546	1- •		١	ļ			į	ı
	1		lpur To			224			4.75
Amalsad	Acres 1,192	666	612	114	82	258	335	3.26	4.71
	Rs. 10,844	400	***	-				0.00	
Kachholi	Acres 1,154	406	695	58	109	210	319	3.61	5.49
	Rs. 10,962		0 700					1 0.50	4.0
Abrama	Acres 3,043	,	2,520	523	91	718	809	3.78	4.31
_	Rs. 14,949	1		201		205			
Eru	Acres 1,898	; ···	1,117	281	6	387	393	3.23	3.61
	Rs. 5,775		I	l	1	<u> </u>		<u>. </u>	<u> </u>

The foregoing table shows the extent of the sub-division. The extent of the fragmentation may be gathered from the following examples of large and small cultivators:—

Name		Village	Area cultivated	Number of separa- te plots	
			Acres		
Vasanji Sarbhai	•••	Pardi Sandhpur	18	14	
Haribhai Gulab		Do	18	18	
Náranji Bhimbhai	•••	Mograwadi	22	20	
Ganda Ratanji	•••	Pardi Sandhpur	8	4	
Khamdubhai Mohanbhai	•••	Do	5	7	

In the same group of villages the following examples may be given of individual fields where the fragmentation is very excessive:—

1. Village Abrama. Survey No. 218.

Area 1 acre 26 gunthas. Assessment Rs. 28. (Bagayat.)

Separate Plots	A	rea	Crop grown in 1915		
	Acres	Gunthas			
1	. 0	9	Sugarcane		
2	0	9	Sugarcane		
8	- 0	10	Dry rice		
4	0	82	Dry rice		
5	0	. 8	Wal		
6	0	`1	Guvar		
7	0	1	Uncultivated		
8	0	1 .	Dry rice		

2. Village Abrama. Survey No. 370. area 26 gunthas. Assessment Rs. 13-8-0. (Rice land)

Separate Plots	Area	Crop grown in 1915
	Acres Gun	thas
1	0 2	
2	0 1	
3	0 2	:
4	0 2	Uncultivated
5	0 1	. 14
6	0 1	<i>: : : : : : : : : :</i>
7	0 2	()
8	0 6	Rice
9	. 0 9	1.1

3. Village Pardi Sandhpur—Survey No. 28, area 3 acres 25 gunthas, assessment Rs. 44—is divided into 21 separate plots, and the whole was uncultivated in 1915.

From the above three cases it will be noticed that when the fragments become very small they tend to go out of cultivation.

Case No. 10

In some parts of Northern Gujarat also, and particularly in the Chharotar sub-division, fragmentation of holdings has reached great lengths. Three statements are here given showing for three villages in the Kaira District the extent of the sub-division and fragmentation of particular holdings and of particular fields.

(1) SHOWING EXTENT OF SUB-DIVISION

No.	27	01		:	1	of holders.	bold- culti-
Serial No.	Name of the village	Occupie area	લ	Assessment	Agricul- turists	Non-Agri- culturists	Average ing per vator
1 2 8	Saloon Uttarsanda Dabhan	2,418 2,231	g. 7 19	Rs. a. p. 14,018 0 0 14,095 2 0 .14,251 1 0	438 484 450	109 86 92	Acres. 5 · 52 4 · 60 4 · 43
		<u> </u>			J Digitiz	ed by GOO	ogle

(2) TYPICAL CASES SHOWING FRAGMENTATION OF PARTICULAR HOLDINGS

Name of	Name of Holder -	Name of Holder - Agriculturists or non-agriculturists holding		Holder - or non-agri- holdin		Assessment of the holding	Number of separate	
Saloon	Big holders		A. g.	Rs. a. p.	 			
1	Patel Kishorbhai Jijibhai	Agriculturist	62 13	328 0 0	27			
3	" Mathurbhai Jes- hangbhai	,,	65 34	412 0 0	23			
3	,, Marghabhai Ichhabhai	,,	88 16	256 0 0	16			
4	"Chhotaial Mansukirbhai	Non-agricul- turist	45 29	275 0 0	14			
5	Tribhovan Chhaganlal	,,	13 30	61 0 0	.7			
8	Hiralal Shivlal Small holders.	,,	11 39	62 00	9			
1	Patel Chhagan Revandas	Agriculturist	7 9	53 4 0	5			
	" Vaghaji Somabhai	,,	5 26	25 1 0	5			
3	Desai Motibhai Shanker- bhai	,,	13 16	70 0 0	6			
4	Laxmishanker Prabhu- shanker	Non-agricul- turist	3 14	18 15 0	2			
5	Iaxminarayan Parsadrai	,,	11 12	71 0 0	8			
6	Shah Valavdas Gangadas	,,	8 32	47 12 0	8			
Uttar-	Big holders				!			
1	Patel Ishvarbhai Bhula- bhai	Agriculturist	28 4	186 6 0	15			
2	" Mathurbhai Muljibhai	,,	12 10	69 9 0	8			
3	Lalubhai Narerbhai	,,	12 7	79 14 0	3			
4	Morlidhar Maharaj	Non-agricul- turist	70 24	378 0 0	18			
5	Jamietram Shivlal	_,,	12 7	73 10 0	4			
6	Narandas Motiram Sadhu Small holders	,,	12 20	71 9 0	9			
1	Patel Kishorbhai Bavaji	Agriculturist	5 26	35 8 0	5			
2	., Babarbhai Zaverbhai	,,	5 34	35 11 0	5			
3	,, Shankerbhai Manor- bhai	,,	3 89	22 0 0	3			
4	Gor Jagannath Shanker	Non-agricul- turist	4 84	29 9 0	4			
5	Mansukhlal Haribhai	. , ,,	5 5	30 0 0	2			
6	Motilal Nagar	,,	5 24	30 0 0	8			

Name of village.	Name of holder	Agriculturists or non-agriculturists Area of the holding.		Assessment of the holding	Number of separate plots	
Dabhan	Big holder s			Rs. a. p.		
1	Patel Kishbhai Becharbhai	'Agriculturists	24 38	173 12 6	18	
2	,, Gokalbhai Kuberbhai	· ,, ···	2 3 10	172 6 0 0	15	
3	,, Naranbhai Dadabhai	,,	14 36	113 9	13	
4 .	Acharya Shripatprasad Biharilal	Non-agricul- turist.	59 18	426 6 6	62	
5	Pandya Dolatram Kirparam	,,	21 17	145 4 0	12	
6	Pandya Dhirajlal Ranchhod	,,	8 24	58 9 0	7	
	Small holders		-			
1	Patel Chakabhai	Agriculturist	7 26	56 10 0	5	
2	Bai Nathi (Patel Mathurabhai Girdhar's daughter).	,,	8 0	54 14 0	8	
3	Patel Motibhai Muljibhai	,,	7 16 1	52 2 6	18	
4	Jamietram Pranshanker Bhast	Non-agricul- turist.	7 23	56 0 0	4	
5	Narmadashanker Chhaganlal Bhatt	.,	5 34	41 5 0	4	
6	Mansukhram Vidyaram	,,	5 18	45 15 0	6	

9.—SELECTED CASES OF EXCESSIVE FRAGMENTATION OF PARTICULAR FIELDS

No.	Name of village	Total irrigated area	S. No.	Area of S. No.	Number of divisions of S. No.	Size of the various divisions in gunthas
		Acres		Λ. g.		
1	Saloon	210	132	13 18	18	128, 19, 20, 84, 16, 41, 22, 24, 83, 29, 6, 18, 28, 31, 37, 14, 11, 27.
2	,,	•••	209	7 31	15	17, 18, 14, 16, 20, 20, 18, 15, 27, 14, 12, 28, 29, 35, 30.
3	•••	•••	630	5 38	12	8?, 51, 34, 11, 4, 5, 16, 12, 4, 5, 8, 6.
4	, ,,	•••	548	7 1	7	82,40,43,27,30,82,27.
5	,,	***	238	20 16	17	21, 19, 120, 102, 15, 15, 27, 28, 14, 14, 192, 49, 41, 42, 42, 40, 40.
6	' ,,	•••	81	3 3	3	61, 32, 30.
1	Uttarsanda	351 .	926	6 18	12	10, 11, 10, 11, 12, 81, During the recent Hiss Survey 45 survey num
2	. ,,		34	8 39	13	37, 37, 18, 18, 25, 26, bers wer divided int 1,525 sub divisions
3	,, !		245	13 16	14	28, 31, 36, 26, 40, 25, 34, 31, 86, 21, 25, 40, 59, 53.
4	,,	•••	934	11 24	12	24, 67, 76, 45, 41, 43, 13, 11, 14, 44, 42, 44.
1	Dabhan	401	. 598	1 16	11	4, 3, 1, 3, 12, 5, 5, 5, 10, 5, 3.
2	,		592	0 32	21	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
3	! .,	•••	901	2 29	7	20, 9, 8, 18, 20, 17, 17.
4	,, !	·	643	0 17	25	Of these only five divisions are of one guntha, and the rest are less than one guntha.

^{*} This is unirrigated land.

C.—DECCAN

The problem differs considerably between the West Deccan and the East Deccan.

In parts of the West Deccan where the rainfall is fairly regular and other conditions favourable, the pressure of the population on the cultivable land is often considerable. In the East Deccan it is usually far less.

Case No. 11

The tables given below show the extent of the sub-division in five villages situated in the Koregaon Taluka, Satara District, under markedly favourable West Deccan conditions. They are distinctly non-irrigated villages, though a few wells exist. Most of their crops are kharif, but they have some rabi.

Na	ame of vills	ıge	Average assessment per acre	Average size of holding held by agriculturists	Area held by non-cultivators and leased out to cultivators
		İ	Rs.	Acres	Acres
1	Tadvala	•••	3 ·08	5.96	22
2.	Jalgaon	•••	1.87	5.19	741
3.	Khed	•••	1.70	6.09	541
4.	Tripoti		1.23	8.32	282
5.	Apsinge	•••	•98	14.26	88

The table on the next page shows for the same five villages further details regarding the size of the holdings.

		_						_					1	1		
			Tadwala	4		Jalgaon			Khed	:	- - 	Tripoti	_	 	Apsinge	
Aren of holdings	ii 88	N 0.	Area	Average access ment per access	No.	Area	Aver- are assess- ment per acre	No.	Area	Ayer- age assess- ment per	No.	Агев	Aver- age assess- ment per acre	N. O.	Area	Aver- age Basessu- ment per acre
	-		Acres	Rg.		Acres	B8.		Acres	Rs.		Acres	Ra	_	Acres	Rs.
1 to 5 acres		. 315	650	8.47	240	484	3.52	197	418	3.07	5	122	1.62	88	285	All inam land.
5 to 15 acres		8.	738	4.14	88	735	2.37	111	1,038	1.91	8	569	1.31	88	148	69.8
15 to 25 acres	:		234	3.62	17	333	1.73	71	311	1.64	16	283	1.18	81	1,436	68.1
25 to 100 acres	:	x 0	303	4.06	æ	241	1.64	o	317	1.67	20	283	1.43	63	866	.41
100 to 500 acres	:	:	:	:		:	:	:	:	:	:	:	:	69	308	.43
Total	•	. 323	1,820	:	347	1,808	:	340	2,074	:	116	967	:	222	3,172	:

It will be noticed that in villages where the average assessment per acre varies from Rs. 3 to Re. 1 the size of the agriculturists' holdings varies from 6 acres to 14 acres. It is only in Apsinge, where a large part of the land is of poor quality, that the average holding exceeds 8 acres. No doubt the land held by non-agriculturists is leased out to some of the smaller holders and gives them some additional area to cultivate; but this relief does not amount to anything very material. The great bulk of the holdings have an area of less than 15 acres each. The best land is for the most part divided up into very small holdings.

Case No. 12

The village of Lhasurna, taluka Koregaon, district Satara, is close to the five villages mentioned in case No. 11. The average size of the holding is 5 acres, and the average assessment per acre for the village is Rs. 2.63. There are 100 acres under patasthal irrigation.

The following instances give an idea of the fragmentation of holdings:—

Survey No. 67 (Patasthal), area 38 gunthas, is divided amongst 6 holders. Average size of each 6½ gunthas.

Survey No. 70 (Patasthal), area 23 gunthas, is divided amongst 7 holders. Average size of plot 31 gunthas.

Survey No. 71 (Patasthal), area 36 gunthas, is divided amongst 3 holders. Average size of plot 12 gunthas.

Survey No. 102, Pot No. 13 (dry land), area 22 gunthas, is divided into 10 plots belonging to 10 different men. Average size of plot 25 gunthas. As a result. of this extreme fragmentation it has been uncultivated for years past.

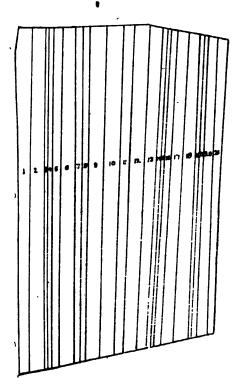
Case No. 13

The village of Pimpla Soudagar, 9 miles from Poona, was selected by Dr. Mann for conducting an economic survey, and he recorded the following facts:—

Occupied area ... 951 acres
Assessment ... Bs. 1,660
Number of holdings ... 156
Average size of holding ... 7 acres
Number of separate plots owned ... 711
Average number of plots per holding ... 4½
Number of separate plots separately cultivated ... 729

Case No. 14

The maps and explanatory statements given on this and the following page of two survey numbers of Mundhwa village, near Poona, both under canal irrigation, show not only great fragmentation of the land, but indicate also the very awkward and unsuitable shapes into which the plots are divided. Some of these narrow strips running the whole length of the field are only 22 feet wide. Such a division makes effective tillage and irrigation impossible.

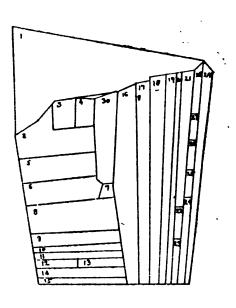


Survey No. 92

Part of	Arc	ea.		ess ent	
Pot No.	A.	G.	R.	A.	P.
1	8	21	4	10	0
2	8	80	4	15	0
3	0	89	1	4	
4	1	Õ	ì	5	ñ
5	1	24	2	2	ŏ
6	2	23	3	2	ŏ
7	1	8	i	9	ő
8	ī	12	î	10	ŏ
9	2	20	3	7	ŏ
10	3	27	4	10	
ii	ì	34	2	8	Ö
12	2	32	3	9	0
13	2	20	3	5	Ž
14		80	0	1	
15	0		Ö		
	1	31	Ų		0
16		1	1	2	0
17	1	33	2	2	0
18	2	17	2	12	0
19	0	89	1	2	0
20	1	85	2	3	
21	1	8	1	6	0
22	0	88	1	2	0
	41	10	51	14	

SURVEY No. 54

		POE D	10. 1		
Part of	Ar	ea.	Assesment		
Pot No.	۸.	G.	R.	Δ.	P.
1	2	27	5	13	0
2	1	25	•	9	0
3	0	16	0	14	0
4	0	12		10	0
5	1	5	2	7	0
*6	1	5	•		0
7	0	4	0	3	6
8	1	30	3	12	0
9	0	29	1	9	0
10	0	15	0	13	0
11	0	15	0	18	0
13	0	10	0	8	6
13	0	10	0	8	6
14	0	20	1	1	0
15	0	19	1	l	0
16	2	11	4	14	0 1
17	1	28	3	11	0
18	1	31	3	14	0
19	0	36	1	15	0
2)	0	27	1	8	0
21	0	31	1	11	0 '
22	0	6	0	5	0
23	0	7	0	6	0
21	0	15	0	13	
25	0	5	0	4	
26	0	7	0	6	0 '
27	0	7	0	6	0 '
28	0	10	0	8	6 '
29	Ŏ	35	1	15	0
80	ì	2	2	5	0
	23	20	51	0	0



Case No. 15

In the case of poorer land the amount of sub-division and fragmentation is naturally less so far as the figures are concerned, though from the economic point of view matters are often at least as bad.

The following figures are for the village of Khadki, taluka Man, district Satara. The soil is of the poorest and the rainfall as capricious as anything in the Decean. The lands of this village may be taken as representing land on the very margin of cultivation, indeed most of them are well below the ecconomic margin:—

 Occupied area
 ...
 ...
 2,716 acres

 Assessment
 ...
 ...
 Rs. 544

 Average assessment per acre
 ...
 ...
 3 annas, 1 pie

 Number of landholders
 ...
 ...
 160

 Number of separate plots
 ...
 ...
 825

 Average size of holding
 ...
 ...
 17 acres

 Average size of plot
 ...
 ...
 2½ acres

In the great majority of holdings, however, the size of the separate plots is much bigger than this. The patil has the largest holding with 187 acres divided into 17 plots, the average size of each plot being 8 acres. It is in the survey numbers which contain a well that fragmentation is marked, e. g.,—

Survey No. 191: area 16 acres; assessment Rs. 4.

There are 14 separate plots in this field, belonging to 14 separate persons, and each of these persons has a share in the one well in the field.

Survey No. 201: area 20 acres; assessment Rs. 10

There are 22 separate plots in this field belonging to 22 separate persons, and each of these persons has a share in the one well in the field.

Case No. 16

The figures given below are for a tract where the pressure of population on the land is comparatively small and the holdings still fairly large:—

Arvi, taluka Dhulia, district West Khandesh:-

Occupied area

... 3,698 acres

Assessment

... Rs. 2,150

Average assessment

About 9 annas per acre

36 holders have holdings of less than 10 acres

74 holders have holdings from 10 to 20 acres

60 holders have holdings from 20 to 50 acres

9 holders have holdings above 50 acres

Anakwadi, taluka Dhulia, district West Khandesh:-

Occupied area

... 1,800 acres

Assessment

... Rs. 556

Average assessment

... 7 annas per acre

The Marwari money-lender owns 356 acres which he leases out to others,

Of the remaining land 7 holdings aggregating 411 acres are between 50 and 70 acres each. The remaining 33 holdings, aggregating 533 acres, average out at 16 acres apiece.

The land of the above two villages is light soil, growing bajri and cotton, and the amount of irrigation is negligible.

Case No. 17

The last case refers to a typical cotton village in the East Deccan, where the soil is deep, the rainfall somewhat precarious and the pressure of population on the soil comparatively small.

Murgundi, taluka Athni, district Belgaum-

Occupied area Number of holdings ... 2,827 acres

Average area of holding

... 153 ... 15 acres

Number of separate plots 327, i.e., slightly over 2 per holding.

It will be seen that here neither sub-division nor fragmentation is acute.

Fragmentation occurs, however; e. g:-

Holding A, 31 acres in 7 plots

Holding B, 12 acres in 6 plots

Holding C, 30 acres in 8 plots

Per contra many of the other holdings are unfragmented. There are 113 working bullocks, i. e., one pair for 40 acres

APPENDIX II

THE EXTENT OF FRAGMENTATION AND SUB-DIVISION OF HOLDINGS IN OTHER COUNTRIES, THE CAUSES OF THE SAME AND THE REMEDIAL MEASURES TAKEN

England

In England, as is well known, the law of entail, the custom of primogeniture, and the difficulties involved in the conveyancing of land, have resulted in the concentration of the land in the hands of a very few persons. It was estimated not very long ago that there are in Great Britain not more than 250,000 owners of land, and

1 Free Land by Arthur Arnold (1880)

that four-fifths of the land belongs to about persons. Consequently there has been in England no question of excessive sub-division of land,-indeed the problem has been the exact reverse, viz., the over-concentration of land in the hands of a few people; and the land legislation that has been undertaken or projected in recent years has been intended to encourage and promote sub-division of land and to bring small holders into existence.

France

In France the situation is the opposite of that in England. The Code Napoleon enacts that on the death of the father property must be equally divided amongst all the children, and limits the parental power of testamentary disposition of property to a part equal to one child's share. This law was bequeathed to France by the authors of the French Revolution. It is designed to promote equality, and to secure the rights of the whole community in the distribution of public wealth. Even before the French Revolution there were many small holdings in France, but it is undoubtedly the case that the operation of this law has caused and continues to cause a great sub-division (and incidentally fragmentation) of holdings. It has roughly been estimated that in France there are 5,000,000 land owners who own estates averaging 7½ acres each, 500,000 who own estates averaging 75 acres each, and 50,000 who own estates averaging 750 acres each. It is asserted that together with the sub-dividing action of the law, another consolidating force is in operation, which arises from the fact that the peasants are very hard-working and frugal, and manage to save enough money to purchase small parcels of land adjoining their own, and to round off their own small properties. The fact that in France families are usually small also mitigates the evil. Still in some parts of France the holdings have been sub-divided and fragmented to an extent which is very prejudicial to effective production and a demand has arisen² in France for a modification of the law which leads to such results, with a view to creating peasant holdings of the right size and shape, and to reconstituting into solid holdings the existing scattered plots. This demand has never been met in full byle gislation, but Acts 8 passed in 1908, 1909 and 1910 allow every farmer to voluntarily place beyond the possibility of expropriation and seizure for debt a holding of a value not exceeding 8,000 francs

M. de Lavergne Economie Rurale de la France, 1875
 M. Jouzier Economie Rurale, pages 344-355 (1903). Bulletin of Economic and Social Intelligence for December 1910, issued by the International Institute of Agriculture, Rome.
 M. Jouzier Economie Rurale, pages 344-355 (1903). Bulletin of Economic and Social Intelligence for February 1914. Digitized by GOOGLE

(Rs. 5,000) which is occupied and worked by his family. This holding remains a joint family property. It is now proposed to extend the scope of this law, presumably in the directions already taken in other European countries (vide post).

Germany

In Germany the Law of Inheritance varies greatly in the different States. In Prussia the law and custom favour the formation of large estates, while in Southern Germany the reverse is the case.

In Wurtemberg a certain moderate portion, defined by law, of the father's property passes to each child, and over the remainder the father is allowed liberty of disposition. So far as is possible, an effort is made to leave a small farm intact to a single son, but it frequently happens that the daughters are on their marriage allotted a share of the paternal land, and as the husband is probably the possessor of a piece of land elsewhere in the commune, the sub-division and intersection of land became serious, and it was estimated in 1880 that the land in Wurtemberg was held by 280,000 peasant owners with less than 5 acres each, as against 160,000 proprietors of estates of more than 5 acres each.

In Bavaria part of the State has adopted the law of inheritance laid down by the Code Napoleon, and in the other part the law ordains that on the death of the father one-third to one-half of his property (according to the size of the family) must be divided equally amongst his children, and over the remainder he can exercise a testamentary disposition. Great efforts are made by the peasants to keep their farms intact, but the land has become much subdivided.

In his "Report on the Tenure of Land in the Grand Duchy of Hesse" submitted to the Foreign Office in 1870, Mr. R. B. D. Morier makes the following interesting remarks:—

"In the great majority of cases the holdings are dispersed over the arable land of the community in single parcels intersected by those of other holdings. In many parts of the Grand Duchy the sub-division arising from these causes has reached an intolerable pitch, and various consolidating acts have been passed for the purpose of remedying the evil. These acts have, however, only been partially successful, and a new measure is being at the present moment prepared which, it is hoped, will prove more efficacious. In the districts in which the consolidated farms are situated, immemorial custom has ruled that the property in its entirety descends to one child, almost invariably

¹ Agrarian legislation in Germany during the present century by R. B. D. Morier (1880).

² The Law and Custom of Primo eniture by the Hon. G. C. Brodrick.

the eldest son, and the younger children do not avail themselves of their undoubted right to claim their pars legitima, though it is, of course, usual that some sort of provision is made for them."

During the past 30 years much work has been done in Germany in the way of creating and resettling peasants holdings on an economic basis. This work has been entrusted to Land Commissions which have been created by the legislative enactments of various States dating from the seventies and eighties. In Prussia eight General Commissions exist for settling land on an economic basis either by the sub-division of large estates, by restriping or by the occupation and improvement of waste lands. The aggregate area of the economic holdings so formed is about 1,850,000 acres. The economic holdings so formed may not be sub-divided nor may they be added to the lands of large land-holders.

A short account² may be given of the work undertaken by the Commission in West Prussia where the main problem is to divide up large estates into small ones and to settle peasant farmers on improved waste lands. This Commission was founded by a law of 1886 which gave the Commission certain powers and placed at its disposal a fund of 100,000,000 marks. With this money the Commission buys large estates, divides them into suitable small farms, and contributes to the necessary expenses of the settlements. These small farms, are given out—

(1) on lease for definite periods,

(2) on freehold, on payment of the price,

(3) on purchase by instalment, and subject to certain definite conditions.

System No. (3) is the most popular.

By a law of 1896 the small farms, so formed, can be sub-divided or separated into parts only with the consent of the Commission. They can be transferred to persons outside the family of the holder only with the consent of the Commission, but this consent can be refused only when the effect of the transfer would be to merge the farm in a larger estate. To preserve the farm in tact the law of 1896 subjects these farms to special laws of inheritance differing from the principle of equality of heirs as established by the German Civil Code of the same year. The law lays down that in the absence of testamentary disposition the holding passes intact to the principal heir, and other heirs can obtain only limited shares in the form of annuities.

By 1908 the funds at the disposal of this Commission had been raised to 550,000,000 marks. In purchasing land

Bulletin of Economic and Social Intelligence for March 191?, published by the International Institute of Agriculture, Rome.
 Ibid., December, 1912.

compulsory expropriation is authorised when the land cannot be obtained otherwise. The land is not handed over to the peasants in its rough state, but drainage or irrigation works are previously undertaken. Roads are made and great care is taken to fix the area of the holdings with regard to their productivity, and to give each holding a good assortment of various qualities of soil without scattering the fields. Endeavor is made to place the homesteads sufficiently far apart to give each homestead plenty of elbow room and to situate it with reference to its land so as to effect economy of time and labour, but not so far apart as to check the development of the collective spirit or of co-operative action.

In Southern Germany where the holdings are already small and fragmented, as noted above, the method by which the Commissions proceed is mainly restripment, i.e., the readjustment of fragmented holdings into compact and conveniently situated blocks. The following examples of this work may be given:—

"The lands of Hohenhaida in Saxony consisted of 1,374 acres belonging to 35 proprietors. It consisted of 774 separate plots. Restripment reduced the number of plots to 60 most of which were served by a single central road. The work was executed at a cost of 3,126 francs (Rs. 1,953), i.e., at a cost of (about) 2½ francs (Rs. 1-9-0) per acre. By the saving of area occupied by roads and fences 21 acres were gained, that is to say, more than the cost of the operation. In consequence of the restripment it has been necessary to increase the size of the barns to provide for the larger outturn of the farms."

In another case from Ostheim, in Hanau, it is stated 1:-"After first rising in revolt against the proposed readjustment of their holdings, stoning the surveyors and chasing the people of this commune ended them away, submitting to the proposal, and having seen the advantages which resulted, showed their appreciation in the way that they received the Minister for Agriculture. The Minister was received by almost all the male population on outskirts of the village, and the chief of the deputation, who four years before had lodged the protest in Berlin, advanced and thanked the Minister for the readjustment of lands which had been carried out against the wishes of the inhabitants, stating that they had not understood the matter, but now they quite appreciated the advantages of the operation which had in many cases trebled the value of the land affected." In the above cases restripment was out under the law upon the application of a majority of the landholders affected.

¹ Bulletin issued by the Ministry of Agriculture in 1884 and quoted on pages 353-355 of M. Jouzier's Economic rurale.

Some of the most recent legislation for preserving economic holdings intact has been passed in Schwartzburg Sondarshausen 1. A law of 1888 required the previous consent of the Provincial Governor before estates could be subdivided; but this was found to be inadequate. A "New Law against Sub-division of Land" passed in 1912 enacts that this consent to sub-division shall be given only on three conditions:—

- (a) Payment of a fixed tax,
- (b) Right of retrocession,
- (c) Right of pre-emption for the Commune and Rural Bank.

The object of this law is to prevent sub-divisions of land which are anti-economic and disastrous to the good working of farms.

Switzerland

In Switzerland sub-division and fragmentation has been carried to such lengths that in one canton (Ticino) the average size of a farm is only 9 acres and the average number of separate parcels in each farm is 35, the average area of each parcel being 1 of an acre. When legislation was first introduced for restriping (i.e., readjustment of scattered holdings) the opposition on the part of the landholders was great. The necessity for overcoming evils caused by this minute sub-division and for improving means of communication was so great, however, that the legislation was forced through, and the results obtained were so satisfactory that the new provisions of the Swiss Civil Code, fixing once for all the principle of the necessity for the . minority to conform to the decision of the majority, was well received by all parties concerned; and it is now held in Switzerland that the economic future of the country depends chiefly on the manner in which these provisions are applied in different cantons. The large number of small farms is regarded as a benefit, and all that the legislation aims at checking is a too minute sub-division which seriously checks production and land improvement. The earliest legislation took place in the Canton of Lucerne in 1808 and in 1897 to encourage the union of small holdings; but these laws remained a dead letter because no provision was made for overcoming the opposition on the part of the minority.

The first law introducing the element of compulsion was passed in Ticino in 1852. This law granted to a proprietor the right of compelling his neighbors to sell to

Bulletin of the Bureau of Social and Economic Intelligence for October 1912, 203.

him or to exchange plots of less than 300 square metres adjacent to his own property. The neighboring proprietor might require in exchange a plot superior by one-fifth to the value of the plot given up by him. This law also remained inoperative. The law under which progress has been made is the law of 1902 for "the restriping and re-adjustment of landed property." This law lays down that as soon as the undertaking is planned the consent of a majority of proprietors concerned, or, in default of this, of a number of proprietors who represent half the land to be restriped will be sufficient to compel the opposition to associate in the work. Restriping may even be ordered officially by the Council of State in the case of any commune or region of 10 hectares, when the average extent of the parcels in such commune or zone is less than 500 square meters. In 1908 restriping was declared to be compulsory by the Council of State in six communes.

Other Cantons have passed very similar laws, and in many Cantons restriping has been systematically ordered on a compulsory basis in connection with the construction of public works such as road-making, canals, drainage or surveys. Commissions are appointed to carry out the work and grants of public money made to facilitate the work. In the Canton of St. Gall it is shown that restriping with closer grouping adapted to local conditions has caused all the inconveniences due to sub-division and fragmentation to disappear, and the enhanced value of the holdings resulting from this work is estimated at from 60 per cent to 77 per cent.

As a result of the experience gained by the operation

As a result of the experience gained by the operation of these communal laws the principle has now been accepted in the Swiss Federal Legislation, and Article 703 of the Swiss Civil Code provides for the compulsory restriping of land when the project is approved of by two-thirds of the persons interested, representing more than half the land. The Cantons have the power of modifying this provision for their own purposes, and work on their own laws. Mr. Girsbarger estimates the increased value obtained by restriping at 500 francs per hectare (Rs. 153 per acre) and calculates the minimum annual saving due to the work already undertaken at one million francs 1 (equal to Rs. 6,25,000).

Austria

In Austria extensive agricultural work connected with the reform of land tenures, the reclamation of waste lands, homestead settlements, etc., is undertaken by Commissions. The restriping of fragmented holdings is part of the work

¹ Ibid., March 1913.

entrusted to such Commissions. Under the law of 1883 restriping could be enforced upon the application of half the landholders affected, but under a recent law restriping can be enforced upon the application of one-third of the landholders affected, provided that they enjoy half the net yield of the parcels of land to be restriped. Much work of this nature has been accomplished and it is recorded that "wherever restriping has been carried out it has realised the results expected from it, increased the yield of the land and reduced the cost of production." 1

Spain

The work undertaken by the Government with a view to the economic regeneration of farms in Spain 2 falls under three heads-

(1) Splitting up big states,

(2) Uniting scattered parcels into economic holdings,

(3) Bringing waste and unreclaimed land under cultivation.

Expropriation is permitted in the case of splitting up big holdings, and also in the case of restriping when it is necessary for the sake of providing each farm with an area sufficient for economical farming.

Specially aided co-operative institutions are into existence to aid these colonies of homestead farms.

Denmark

In Denmark there is in each Department a Commission for the creation of small economic holdings. 1909 and 1914 the State has advanced sums amounting to the equivalent of Rs. 12 crores for this purpose. The economic holdings so created cannot be sub-divided nor united with other land. 8

Sweden

In Sweden the work of reconstituting peasants' farms was commenced a century ago. The objects of the operations were-

(a) To create compact holdings out of scattered lots.

(b) To enlarge farms which were too small to an area that would admit of economical farming.

The first law was passed in 1807, and an amended law passed in 1821 is the law still in force under which the

¹ *Ibid.*, April 1912, May 1913. 2 *Ibid.*, December 1912. 8 *Ibid.*, March 1912.

work is done. This work has gone on very steadily for a century and some 260,000 farms have been reconstituted on this basis, and whereas the number of plots of land constituting a peasant's holding was formerly often from 20 to 40, the average number is now only 2. Of the total number of 260,000 farms mentioned 180,000 of the holders continue to live in the villages, and the other 80,000 holders, with their families, nearly a third part of the peasant landholders of Sweden, have in the past century quitted the village site to go and live on their lands now united into larger lots.

Italy

In Italy the Law of Inheritance allows a landowner to leave half his property as he likes, but the other half must be divided equally amongst his children. Owing to this law holdings have become much sub-divided.

In 1894 an Act was passed which enabled a landholder having land, the net income from which was calculated at between 200 and 600 francs per annum, to constitute this land as a "family property". A farm so constituted ceased to be the property of an individual and was held jointly by the family. It also became inalienable and could not be seized for debt.

In 1910 a further Bill was introduced to facilitate the creation of small farms of from 23 to 7 acres each, to form which peasants could obtain from the Government loans on easy terms. The farms so formed were to remain indivisible.2

Russia

The case of Russia is instructive because prior to 1906 a large part of the land was held jointly by families on a system somewhat analogous to the Hindu joint family system. With a view to improve the extremely backward and ineffective system of farming in Russia and to raise the abject state of poverty, important peasants from their agrarian legislation was undertaken in 1906. The two most important factors in the reforms instituted consisted of-

- (a) the abolition of collective family ownership, and the substitution of the head of the family as the free and independent owner of the holding,
- (b) the reuniting in one contiguous holding the scattered plots which formerly made up the holding.

¹ Ibid., October—November 1910. Ibid., Feb. 1911. Ibid., June 1915. Ibid., July 1915.

Ibid., Feb. 1917.

These measures were applied in the case of some lands on the application of the holders, and in the case of others

compulsorily.

It was objected that it was unjust to deprive the other members of the family of their rights in the holdings, and the theoretical "injustice" of the proceeding was admitted; but it was held that these men who were dispossessed of their illusory rights to a share of the produce of uneconomic holdings would be better off as free labourers, and that the measure was necessary for the regeneration of agricultural practice. As a matter of fact agricultural wages in Russia have risen largely since that time, and the condition of the dispossessed sharers has been improved.

As a result of these measures it is now reported that-

(a) More than three-fourths of the investigated farms have now land in one contiguous piece, while formerly the great majority consisted of six or more separate pieces of land, and many of them of 30, 40 or even 100 pieces.

(b) Most of the farmers now live on or near their

own farm.

(c) More than 40 per cent of the peasants have now carried out marked improvements on their farm lands.

(d) Agricultural implements have been greatly improved

in quality.

(e) Agricultural practice has been greatly improved.

(f) The harvest gathered in recent years on these newly settled farms is heavier than on farms still held on the old system.

Belgium

In Belgium the Code Napoleon is in force and its operation has resulted in the creation of many small holdings, but in Flanders, at any rate, the holdings, though small, have not been seriously split up into separate parcels. This danger to a large extent was averted by the sagacity and care of the small land-owners. M. Emile de Lavalaye states: "The Flemish peasant attaches too much value to the proper outline of a field to break it up into pieces; he would rather sell it altogether. He would never think of dividing the farm he cultivates amongst his children. On the contrary he will submit to extraordinary sacrifices to give the farm the size and typical shape it should have."

¹ Land System of Belgium and Holland, by M. Emile de Lavalaye (1880).

Holland

In Holland there is an interesting tenure known as Beklem-reght which constitutes a permanent tenant right. This right can be sold, mortgaged or bequeathed, and is very similar to the Occupancy Right of the Bombay Presidency, but with this important difference that the right is indivisible and so presents an effective bar to injurious sub-division of land. In spite of this they are proposing in Holland to introduce legislation to facilitate restripment.

Jersey

In Jersey the Law of Inheritance is substantially the same as in France, but with this important difference that when a farm is of an area less than 1½ acres the eldest son inherits the whole.

Japan

70 per cent of the holdings in Japan are smaller than 2½ acres, and are much fragmented. The cultivated land of Japan is for the most part sub-divided into small, narrow and irregular lots, with an insufficient and often unreasonable system of roads, and often imperfectly and not suitably irrigated, and drained. With the object of increasing the produce of the soil, and preventing the inconvenience caused by the existence of numerous small lots belonging to the same proprietor, and scattered over a large area, the Japanese Government, following the example of other countries, has appointed Commissions to effect readjustment of lands.

A law for the readjustment of lands was passed in 1899 and amended in 1909. The law provides for—

- (1) the necessary interchange of land and the restriping of lots,
- (2) the construction of roads, irrigation works, etc. ·

In order to obtain authorisation to form a Syndicate for the readjustment of farm lands it is necessary to obtain the consent of at least half the landowners in the tract in which the Syndicate intends to work, and these landowners must represent two-thirds of the land affected. The farms restriped are exempted from land tax, and special credit institutions are provided to finance them.

So far as the work has gone, it has resulted in considerable improvements in roads and canals, an increase in rice growing, and the general convenience of all concerned.¹

1 Ibid. Feb. 1913; and Outlines of Agriculture in Japan, pp. 22-3, issued by Agricultural Bureau, Tokio (1910).

APPENDIX III

SHORT STATEMENT OF OBJECTS AND REASONS FOR A BILL TO ENABLE LANDOWNERS IN THE PRESIDENCY OF BOMBAY TO PREVENT THE EXCESSIVE SUB-DIVISION OF AGRICULTURAL HOLDINGS!

- 1. It has long been a subject of comment in India that the land-holdings of cultivators have become sub-divided up to a point at which they are now, in many localities, very small, and that the holdings, whether large or small, are frequently "fragmented" in a manner which is very prejudicial to effective cultivation. This progressive process of sub-division and fragmentation is due to the increase of population and to the fact that the laws of inheritance which are in force in this country operate in such a way as to give to each male member of a landholder's family a share in the family land.
- 2. The same causes have produced precisely the same results in other countries, though in hardly any other country has the process been pushed so far. In many other countries legislation has been undertaken to remedy this state of affairs and has been found to be effective, resulting in an increase in the outturn of agricultural produce and a decrease in the cost of production. Such legislation has come to be recognised, even in countries where at first it met with much opposition, as altogether favorable to economic progress and to the production of increased wealth. The lines on which legislation has usually proceeded have been the compulsory and voluntary consolidation of holdings coupled with the provision that holdings once consolidated may not afterwards be sub-divided.
- 3. In the Bombay Presidency in general, and in particular in the Konkan, West Deccan and the garden and rice tracts of Gujarat, sub-division and fragmentation of land have reached an intolerable point. Over large tracts the average size of the holding is only two or three acres, while fields measuring less than half an acre are found to be sub-divided into more than 20 separately owned plots, many of them of less than one guntha (one-fortieth of an acre) apiece. The process of sub-division and fragmentation is continuously going on, both in tracts where the situation is already acute and in tracts where the holdings are still, on the whole, of reasonable dimensions.

¹ It has unfortunately proved impossible to reprint the text of the proposed bill owing to reasons of space. The Illustrations, and Notes on Clauses are also omitted, but the Schedule is printed on p. 230. Any person specially anxious to obtain a copy of the bill is recommended to communicate with the Director of Agriculture for Bombay, at Poona, or with the Editor of this Journal.



- 4. The evils of this excessive sub-division and fragmentation of land may be briefly stated as follows:—
 - (a) they impede current cultivation and waste time;
 - (b) they prevent permanent improvements being undertaken;
 - (c) they prevent a cultivator from living on his farm;
 - (d) they prevent the organisation of labour and capital;
 - (e) they frequently result in second crops not being grown;
 - (f) they sometimes send the land out of cultivation altogether;
 - (g) they cause enmity amongst neighbors, leading to litigation and permanent feuds;
 - (h) they produce a generally uneconomic situation.

In view of the fact that a large proportion of the cultivable land has been reduced to these unfavorable conditions, it is almost impossible to expect any substantial economic improvement amongst the majority of the landholders until the fundamental impediment is removed. So long as the existing laws of inheritance continue to operate in such a way as to sub-divide holdings continuously from generation to generation it is impossible either for landowners or for the executive government to take any steps in the direction of consolidation of holdings which would have more than a temporary effect. The object of this bill is to enable such landowners as may wish to do so to check the further sub-division of their lands and to enable them, when it is otherwise possible, to effect a permanent consolidation of their holdings; and also to enable the executive government to secure the same results in respect of unoccupied land. The legislation proposed is purely enabling, and it will be operative in the case of any holding only upon the expressed wish of every person possessing an interest in that holding.

5. The scheme embodied in the proposed bill for securing these objects is briefly ลธ tollows. In order to constituted an economic holding a plot of land must be entered as such in a register prescribed by rules. If the land is occupied, it will rest with some person having an interest in the land to make an application to the collector to have the land registered as an economic holding. word interest is here used in the legal sense. Cf. the use of the word in section 58 (a) of the Transfer of Property Unless the collector considers that there are Act. 1882). sufficient grounds for rejecting the application, he holds a careful enquiry, in which he follows a procedure similar to that prescribed in the Land Acquisition Act, 1894. If the proceedings show that all persons interested agree, the land is registered. Land vesting absolutely in Government may be registered without enquiry. The holding must in any

case be registered in one name only, and the act of registration annuls all the interests of all other persons, except the registered owner, in the holding. Thereafter the owner cannot divide the plot, but must, so long as he owns it, keep it entire. He may sell, mortgage or otherwise dispose of it as an entire unit, but may not dispose of part of it or do anything that might result in splitting up the holding. On the death of the holder, if he has not disposed of the land by will, it will devolve upon a single heir. If the provisions of the bill are contravened (for instance, if the holder mortgages a part of his holding and the mortgagee obtains a decree for possession), the collector is empowered to send a certificate to the court, and the court will set aside its decree or order. The collector may also evict the person in wrongful possession. When a plot has once been constituted an economic holding, the registration cannot be cancelled except with the consent of the collector: the grounds on which cancellation will be allowed, will be laid down by rule, and it is proposed that it shall be permitted chiefly in cases where economic considerations indicate that it is expedient.

6. There is some difficulty in framing provision to secure the integrity of the holding in spite of existing law and custom in favor of the sub-division of land. As will be seen, the above scheme aims at effecting the object in view by giving the registered owner an exclusive interest in the holding at the outset; by preventing the sub-division of the holding by transfer inter vivos or by will or by the operation of law; and by preventing sub-division in the case of the owner's death intestate. Each of these provisions appears essential to the success of the bill. With regard to the first, it may be said that wherever two or more persons are interested (whether jointly or otherwise) in a holding there is a probability that at some time the holders will desire to divide the land. The necessity for the second provision seems obvious; but it may be observed that in order to prevent partition the holding must not be permitted to become joint property or coparcenary property according to Hindu With regard to the third, there is considerable difficulty. If the operation of any law under which property is divided on an intestate succession is excluded, some rule of succession to take its place must be devised. Hindu and Muhomedan law, the Indian Succession Act, 1865, and the Parsi Intestate Succession Act 1865, all contemplate the division of immoveable property on succession. The Hindu law, indeed recognizes impartible property, but the principles governing the succession to such property do not appear to be sufficiently clear for application to agricultural holdings, in connection with which it is desirable to prevent litigation as far as possible. Moreover as an economic holding could be transferred to any person, a law of succession that will prevent its sub-divison in all cases, whatever the law of succession to which the transferee is subject, is required. The difficulty cannot apparently be surmounted except by enacting special rules of succession for economic holdings. Some provisional rules for this purpose have been set out in the schedule, but they are intended merely as an example of what is indicated, for it is felt that the matter is one which can more satisfactorily be dealt with later, when those classes of the community who will be affected have bad an opportunity of expressing their opinions on the bill.

THE SCHEDULE

- 1. The succession is traced from the person last entitled to the holding.
- 2. The succession is in the first place to the issue lineally of the person last entitled to the holding, the male issue being preferred to the female.
- 3. Where there are two or more heirs in equal degree, the eldest only succeeds.
- 4. The lineal descendants of any person deceased represent their ancestor, that is to say, they occupy the same position as he would have occupied if he had been alive.
- 5. On failure of lineal descendants, the nearest lineal ancestor succeeds.
- 6. A paternal ancestor and his descendants are preferred to a maternal ancestor; a male paternal or maternal ancestor with his descendants is preferred to a female paternal or maternal ancestor respectively.
 - 7. Illegitimate relationship is not recognised.
- 8. A person related by the half blood is capable of being the heir and stands in the order of succession next after any relation in the same degree of the whole blood and his issue where the common ancestor is a male, and next after the common ancestor where the common ancestor is a female.
- 9. Adoption is recognized whenever it would be recognized under the law of succession to which the parties are subject in cases not governed by this act.

THE ART OF ECONOMIC DEVELOPMENT

(CONTINUED)

PROFESSOR H. STANLEY JEVONS, M.A., B.Sc., F.S.S. UNIVERSITY PROFESSOR OF ECONOMICS, ALLAHABAD

V.—PRINCIPLES OF FINANCE

Definition and Scope of Finance-Finance is always considered to be one of the most elusive and difficult subjects with which practical men of affairs are obliged to grapple; and much study and experience are supposed to be necessary before its principles can be so thoroughly understood that they may be safely applied in government, in business, and in private life. Yet the theory of finance is not intrinsically difficult, like higher mathematics, or the arguments of metaphysics. Finance seems difficult only because it has never been converted into an ordered body of precepts, logically developed from a scientific study of financial operations. Such study must relate them on the one hand to the ends or objects for which they are undertaken, and on the other hand to the economic laws characteristic at the time of the social order in which the finance is to be practised. Finance must also be co-ordinated with psychological, physical, and even with political and other social generalizations; but, speaking generally, these are of somewhat less importance for successful finance than on the one hand a clear and successful determination of the aim in view, and on the other hand a full consideration of the relevant economic laws and facts.

At the outset it is necessary to understand clearly in what sense the word finance is here used. intention is to use it in a wide sense which corresponds as nearly as possible with the ordinary and scientific acceptation of the term, whilst giving it perhaps a somewhat clearer and more precise meaning. There is both an artand a science of finance; and the most convenient nomenclature is to use the word finance by itself to mean the art, and to say specially science of finance when the science is meant. cordingly finance may be defined as the art regulating the transactions of any individual or corporate body connected with the aquisition, care and expenditure of money so as to achieve a certain aim or end, or set of aims. This is the meaning of the word when used in the combination public finance: and in colloquial language "high finance" means the art or business of carrying on big transactions by bankers, underwriters and issuers of stock exchange securities, as in London and other great monetary centres. A financier is the person who practises the art or business of finance.

When we turn to the literature of economics we find, however, that the word finance is generally used in the sense of a science of finance to denote the study of all transactions connected with the acquisition, care and expenditure of money, and is often extended to include the statistics of banking operations, prices, and so forth.

It would seem to be desirable, however, to have a precise and extensive definition of the science of finance corresponding in scope with that usually

allowed, and stated above. We may say, therefore, that the science of finance investigates and treats of all the monetary transactions of individuals and business firms, and of all corporate bodies whether public, such as the State and municipalities, or private, such as companies and charitable associations. Banking and insurance form special sections of finance, the monetary transactions being the principal part of such businesses; but I exclude from the science of statistical investigations of currency circulation and of prices, which belong to the theory of prices and are part of the theory of exchange. For many purposes it is convenient to distinguish between private and business finance; and business finance may be divided into partnership and joint-stock finance. Then we have the transactions of nonprofit-making charitable endowments, societies and clubs, universities, associations, and so forth; and the finance of the municipal and district councils and boards, and of the State itself in its separate divisions of the provincial and central governments. The former may conveniently be called association finance; the latter, i.e., central government, provincial and local finance, is properly called public finance.1

The scope of both the art and science of finance is here extended equally to both private and public monetary transactions, because it appears to me desireable to recognize the essential identity of the principles which guide financial operations whether such operations are carried out by private individuals, by corporations, or by the State. The underlying principles remain the same whatever the constitution and powers of the body controlling the financial operations. It is only in working out their applica-

¹ German authors have used the word Finanz to mean exclusively public finance, and a few American authors have followed them, notably H. C. Adams, in his book The Science of Finance.

tion that the difference of the legal status of the owners of the funds concerned introduces differences in the weight or incidence to be given to the different principles of finance. One of my purposes in setting forth here some of the fundamental principles of finance will be served even by the mere adoption of the definitions of the art and science which I have already stated; because the recognition of the applicability of the same underlying principles of finance to transactions both public and private leads immediately to the important idea that a change in the financial agent, as from a private individual to a limited company, or from a company to the State, is of far less significance than is supposed. One peculiar merit of company management appears to be that it forces the persons in control to learn the elementary principles of finance. If these be systematized they will be the more readily available to persons controlling funds under other forms of ownership.

2. Aims and importance of Finance—It is clear that finance itself has nothing to do with determining or even studying the objects for which expenditure is made or proposed. In the conduct of any business concern it is a serious error to confuse finance with management, as may happen, for example, when the accountant or financial director of a company prepares budgets of expenditure rather than the manager. In public affairs it is equally serious to confuse finance with the determination of policy. It is almost as dangerous for control of the state to be vested actually or virtually in a man who is by training primarily a financier as in a soldier.

It may be said that the aim of finance is to lay down the easiest path by which to reach a certain

goal. Money is the mechanism whereby the labor and property of persons may be directed towards the attainment of any object. The state no longer, except in war time, forces the labor of its subjects and requisitions their property. Instead, it forces them to provide it with money by taxes; and thus arises the business of the financier, who is supposed to discover the least onerous and the least costly method of raising the necessary funds, and to make the dispositions required by the policy of the state for their expenditure.

It is the aim of statecraft or the art of politics to indicate the objects or goals of public activities; and the political leaders, or members of the government in power for the time being, are the persons who decide on a certain policy. The financier has then to make all the necessary monetary arrangements for realising the projects or policy adopted. He is supposed to be able to say the best way of doing so with the greatest security. The true aim of finance is to secure the greatest efficiency in reaching the objective by the proper disposition of the monetary transactions.

On the other hand, whilst the methods of finance need to be subordinated to the objects of policy, it is yet true that the financier in business must be concerned with management, and in government with policy, to the extent that financial considerations of ways and means may properly veto or limit particular proposals for action, at least temporarily; and further he must know enough of business or politics respectively to see that no injury is done to the firm or to the population by the financial measures he proposes for providing ways and means for the expenditure decided to be necessary to reach the end in view.

It will be perceived from the foregoing description of the scope and aims of finance that the practical

importance of the study of this subject can hardly be overestimated. Finance enters into all the affairs of daily life, both in business and the home. But it is an important subject, not only because its use is so widespread; but even more because of the serious issues which bad finance entails, whether it be to an individual, a business firm or company, a public authority, or to the State itself. The individual may ruin his prospects, and the happiness of himself and his family for life; the business firm or company may come to an end, involving the partners or shareholders in the misfortune; the local authority may get into such difficulties that it either fails to redeem its debt. or, more probably, ceases to make adequate provision for urgent public needs; and if the finance of the State itself is bad, even a good policy is nullified, and the population becomes ground down under a heavy load of taxation for which it gets no return in public In every case, almost without exception, the heavy losses of money mean real and direct losses of happiness-often a great measure of their total happiness-to the persons concerned.

Much of this tremendous loss could be saved by the wide diffusion of a proper understanding of the fundamental principles of finance. These require to be formulated with a simple and direct clearness. Full account should be taken of the broad underlying generalizations; and their applications to everyday financial transactions, which is indeed a simple matter, must be kept free from all the usual encumbrance of detail, and from connection with any particular customary method of book-keeping. Once this is done people will learn to guide their conduct by deductions from a few general principles; and they will no longer have to depend on what they happen to remember of the conventional rules of good finance,

supplemented by their new experience, or their friends' advice. These are all uncertain guides because nothing but a general principle can meet the circumstances of all possible events.

- 3. The Three Systems of Finance.—According to the relations of revenue and expenditure to one another we may recognise three distinct systems of finance, as I think it is appropriate to call them. It will be convenient to name them as follows:—
 - (1) The system of Predetermined income,
 - (2) The system of Predetermined expenditure,
 - (3) The Commercial system.

Predetermined income is the best name I can find to indicate the type of finance in which the income is more or less a fixed quantity; or more accurately, in which the income is not subject to variation at will by the recipient, except within narrow limits or very slowly. It follows that the practice of finance in this system is to ascertain what income will become available for the ensuing year and to adjust the expenditure under the various heads in such a way as to get the maximum of advantage out of the income which, it is estimated, will be available. The simplest example of this form of finance is the case of any private individual employed in a permanent position either at a fixed salary or at a salary increasing according to a pre-arranged scale. He may earn a little extra money with work taken in his spare time; but in the main his income is predetermined. Other examples can be found amongst associations and institutions such as charitable homes, or any schools and colleges which subsist upon income from endowments or upon state grants. The most interesting and important example is to be found in the public finances of any state or territory which is in a primi-

tive or undeveloped condition. In such a state the people produce by their agriculture little more than is necessary to provide them with the means of subsistence. Consequently there is but a very small margin of the annual produce available to be taken either by the state or by the landlords. As a matter of fact the state always assumes a prior right to the surplus income of its people over the bare minimum of subsistence, as being necessary to maintain its existence by providing for the exercise of the functions of government. The economic history of India provides abundant evidence that during the latter period of the Moghal Empire and the first few decades of the British rule the taxable capacity of the people was very low, and the revenue which reached the Treasury was barely sufficient to maintain the Government. Certainly it was revenue which was incapable of expansion at the will of the Government. Hence the system of finance forced upon the Government of India in its early history was that of predetermined income. Owing to the fact that the uncertainty of varying assessments of land revenue leads to paralysis of improvements in agriculture, permanent or long period settlements have been adopted; and since the state income has so largely been taken in the form of land revenue, the system of predetermined income has remained in vogue in almost all British and Native State finance in India.

Predetermined expenditure is the name here given to the second system of finance. The idea underlying this name is that it is the expenditure rather than the income which is determined upon beforehand, and the income which is adjusted to the expenditure rather than the expenditure to the income available, as in the first system. I may give a fanciful example by supposing the case of a man whose wants are few

¹ The term taxable capacity is defined in the next section, p. 240.

as a rule, who decides what he wants to spend during the next week or month and then uses a part of his ample leisure time to work just sufficiently: long to provide the income necessary to meet the expenditure determined on. Perhaps this example is not altogether fanciful, for casual labourers in India; as elsewhere, are rather given to working only when they are short of the means of subsistence when some special need arises. The important example of this system, however, is that of the finances of some of the western European nations, more particularly England. There the Government prepares its budget of expenditure upon the basis of the public needs which are considered to be urgent; and every expenditure coming up to a certain level of urgency is submitted for sanction without direct reference to whether there are the funds available to meet it or not. When the Chancellor of the Exchequer has prepared his budget of necessary expenditure as submitted by the various departments, he advises as to the ways and means of raising the revenue required to meet this expenditure. He estimates the yield of the taxes which are regarded as fixed and of the other settled sources of revenue; and then he varies the rates of certain taxes considered to be suitable for this purpose, such as the income-tax and the duties upon tea, tobacco, spirits, and sugar. The aim is to adjust the income to the necessary expenditure as exactly as possible, the budget usually providing for a small surplus as a margin against possible underestimation of the yield of some of the taxes of the year. The English municipal councils and county councils adopt a similar method of finance. revenue arises almost entirely from rates levied upon the annual value of real property, both buildings and land. The annual value of every property is assessed

every few years, and the rate is levied each half-year on all properties at a certain percentage, usually expressed as so many shillings and pence in the £1. This corresponds with levying so many annas and pies in the rupee.

The English municipalities, like the central Government, prepare a budget of expenditure according to what they consider to be the public needs in the way of new schools, construction of roads, town halls and public utilities of every description; and having decided on the necessary expenditure they proceed to make a rate which will yield the revenue required. This is done every half-year, when the rate may be put up or down 2d or 4d in £1 as the expenditure may need.

Yet another example may be given—of a big lord of large agricultural estates who has not rackrented his tenants, but normally charges them considerably less than the full economic rent, which in this case is equivalent to the balance of taxable capacity after deducting taxes actually paid. landlord has a margin to increase his income whenever he may be in need of money for any serious necessity by raising the rents of his tenants. as in the English system, they are wholly or mostly tenants to will. The system of abwabs in Bihar would be classified here. The evils of the system are mainly due to the smallness of the margin above subsistence and the arbitrariness of such exactions from tenants.

In the Commercial system neither income nor expenditure is predetermined, but both may be varied from time to time, and in fact should be varied in the course of the business transactions. It is the essence of business, whether that of a merchant or of a manufacturer, that additional expenditure, wisely made, yields additional income greater than the

expenditure, thus increasing the profit. Every wise business man increases his annual expenditure in every direction which he finds remunerative by its yielding a more than equivalent increase of his income. The theory of economics shows what are the causes, or economic laws, that determine, at any time, what are the profitable directions of outlay. From our present point of view in finance, however, the only important point is that the expenditure and income are equally variable from time to thine in accordance with the requirements of the business. This system of finance is equally applicable to every kind of commercial undertaking whether it is owned by a single individual, by a private firm or company, or by Government, or by any other public authority or institution. commercial system of finance is the very essence of business; and the failure to recognize its essential difference from the system of finance necessary in the normal functions of Government has led to the failure of many commercial enterpises undertaken by Government, both in India and other countries.

4. Taxable Capacity. In a later section when we deal with the practicable methods for financing public works it will be necessary for us to consider taxable capacity as the ultimate basis of security for public debt. We shall find that the idea of taxable capacity is essential in the consideration of the question of the extent to which Government may itself undertake or control a greater or lesser proportion of the total social expenditure. The taxable capacity of any community may be briefly defined as the surplus produce of the people above what is necessary to maintain existence according to the standard of life prevailing at the time in the country concerned. This is not an exact definition, because the phrases, "maintain exis-

tence" and "according to" are extremely vague.

Before proceeding to give greater precision to the idea of taxable capacity, let me quote a well known author, Mr. Charles S. Devas on this subject. "The notion of taxable capacity" he writes "is of great importance, and is not the absolute limit in each country of what can be extracted from the people by taxation, but rather is that limit of taxation which if habitually exceeded indicates over-taxation. To judge of this limit we must recall the chapter on the theory of consumption regarding the limitation of human wants, the distinction of necessaries and superfluities, the meaning of absolute and conventional necessaries and of the standard of life. Then we can lay down that whenever taxation, instead of being drawn from superfluities, makes an encroachment on absolute or conventional necessaries, and threatens to lower the standard of life, the people are being taxed above their taxable capacity."

It is a mistake, he adds, "to adopt some percentage of the total income of a country as the criterion of over-taxation, and to say, for example, that as long as no more than 10 or 12 per cent of that income is taken for purposes of State, there is no over-taxation. In reality, this criterion is unsound, because the same percentage in one country might leave over an abundance of superfluities, in another might encroach upon necessaries. It is not then income simply that is the proper object of taxation, but what may be called superfluous or surplus income, namely, what is available after absolute and conventional necessaries have been satisfied; and the greater this surplus income the greater the taxable capacity of the country".

The only weak point in this definition of Mr. Devas
1 Political Economy (Longmans, Green & Co.), 3rd edition; pp. 539-3.

is the difficulty of determining what are "conventional necessaries". This difficulty has been removed in an indirect manner, however, by Marshall, who has observed that the conventional necessaries are those to obtain which "the average man and woman will sacrifice some things which are necessary for efficiency". In other words, although it is only the absolute necessaries which are really essential to health and efficiency, people have so great a desire for certain conventional ways of living, which are customary in their station of life, and often also pleasant-at the moment of consumption, that they will forego some of the absolute necessaries rather than the conventional necessaries, thereby causing some injury to their health and efficiency. Hence an income which is not sufficient to provide a family with the conventional as well as the absolute necessaries will tend to keep the working members of the family below the level of normal efficiency—that is to say, the most common standard of efficiency amongst healthy persons in the country at the time. The question whether it is possible to measure the efficiency of the workers of a population and discover whether there is any falling off as a result of taxation does not necessarily arise. The principle of limiting the total taxation so that, if evenly distributed according to the ability to pay, it will not lower the efficiency of workers, gives us a theoretical limit to the taxable capacity which is theoretically sound, because if the taxation were further increased there would be an actual diminution of social income.

We thus see that the taxable capacity of a community means the extent to which the total social income can be diverted by the force of the law into the coffers of the Government without reducing the

¹ Principles of Economics, Bk. II., Ch., III., §4.

consumption of the necessaries of life, absolute and conventional, to such an extent as to impair the efficiency of the people as workers. The very great variation of wants as between different persons makes it, of course, impossible to arrive at any precise measure or even a really precise definition of taxable canacity. Many persons, for example, will even reduce their consumption of the necessaries of life below what is requisite for efficiency rather than entirely forego luxuries; and again, a very great difference exists between different people as to the degree of efficiency obtainable by distributing the expenditure of their available income on necessaries. The income which would serve to keep one family fully efficient may be insufficient for another family of equal size, simply owing to the unwise distribution of expenditure made by the latter.

In economic ideas of this class it is necessary to deal with average results, taking the human beings of the community in the mass. By doing this we are really taking short cuts in the analysis of the effects of legal measures upon the people, and it must not be forgotten that a complete analysis will demand an enquiry into the habits of various classes of individuals. For my present purpose, however, it is sufficient to deal with broad general averages, and to give only an occasional or incidental indication of effects upon the different classes of the population.

A practicable method of estimating the taxable capacity of any population may be sought by some further analysis of social income. The people may be regarded as divided into two classes: (1) Government servants of the civil and military services whose salaries are paid out of the taxes and land revenue and rents received by Government (to whom the term Government servants will be confined here); (2) the rest of the population, including all Government employees in

the commercial services—that is, those branches of the administration which render special services to individuals for which a measured charge is made. The second class—the general public—expend social income in four great groups of payments: (1) purchases of absolute and conventional necessaries: (2) The taxes, revenues, and rents, a part of which is used to maintain the whole body of Government servants; (3) Investments in capital goods of all kinds for productive purposes; (4) Purchases of superfluities and luxuries. For brevity, group (1) will be denoted necessaries, implying those which are both absolute and conventional; group (2) will be denoted taxes, the word including land revenue, rents, fees and royalties; group (3) will be denoted investments, whether the investment be in a company, or any stock exchange security, or in any form of private business, loan or deposit; and group (4) will be denoted superfluities, implying also luxuries.

It may be assumed that the public expenditure of Government is entirely devoted to necessaries and capital goods for productive purposes, and that no part of it is devoted to purchasing those commodities which are superfluities for the great mass of the population. On the other hand part of the private expenditure of Government officers out of their salaries is devoted to superfluities, and forms a part of the whole social expenditure on superfluities.

The taxable capacity of the people consists, therefore, of the part of the social income of the public which actually pays the taxes, together with that part which is spent on superfluities. The part of the income of Government servants which is spent on superfluities should be added so as to ascertain the taxable capacity of the entire population. The taxes paid by Government servants might also be added, except that, when of

long standing, they merely represent a paper transaction, as they did not affect the real price at which Government could hire services. A full discussion of the economic position of the taxes paid by Government servants would be lengthy and unprofitable for my present purpose; but if the full salaries paid them are included in the social income, obviously the whole of the taxes paid by them must be included in any numerical estimate of the taxable capacity; and this will usually be the most convenient plan.

It is necessary next to consider the taxable capacity of different classes of the population separately. For this purpose it is convenient to coin a new technical phrase-minimum social expenditure which means that portion of the social income which is expended on necessaries, absolute and conventional, and is, therefore, the minimum expenditure on which society can exist. It will be observed that the minimum social expenditure plus the taxable capacity of any community are equal to its social income. Society as a whole is composed of many classes having different average incomes. The social income of the class is the sum of the net incomes of all the persons in that class; and the social income of the whole population is the sum of the social incomes of all the classes into which it may be divided taken separately.

Each class of the community has its own minimum social expenditure and its own taxable capacity. For each class, and also in comparing each class with others, we notice that minimum social expenditure increases as social income increases, but usually not so fast, so that taxable capacity increases faster than minimum social expenditure. The same relation is seen when we compare the whole populations of different countries. Minimum social expenditure is probably highest per head of population in

the United States, next in England, very much lower in Russia and China, and lowest probably amongst civilized countries in parts of India. The social income and the taxable capacity of these countries are probably in nearly the same proportion.

The different classes of the community each have their own taxable capacity; but they are also to a great extent earning or enjoying incomes of different origin, and their habits, and consequently the commodities on which the minimum social expenditure is spent. All this ought to be taken into account in devising the tax system, so as to lay the burden equally on all classes by taking the same percentage of the taxable capacity per capita, when the taxable capacity per capita is equal. The greater the taxable capacity per capita the greater should be the percentage taken. In other words taxation should be progressive, but based on the surplus income above the minimum needed to maintain the conventional standard of life. and not on the whole income. In India a class of artisan traders whose average income is Rs. 1,200 per annum has a much higher taxable capacity than college educated clerks whose average income is the same. because the former can live for Rs. 40 per month, the latter for not less than Rs. 80. This is a question which we need not follow further. It has only been introduced to show the extreme difficulty, not to say impossibility, of devising any system of taxation such as could absorb the whole taxable capacity of the people. Before this limit was reached for all classes, some would inevitably be taxed beyond it. Consequently any system of taxation which endeavored to obtain more than 75 or 80 per cent of the theoretical taxable capacity would be likely to be oppressive.

The actual estimation of the taxable capacity of the population inhabiting any territory must be made

upon a statistical basis, and two distinct methods are available. The first and most direct method is to estimate the existing social income and then ascertain by an examination of family budgets of different classes the average per capita expenditure on necessaries. Multiplying the latter by the numbers of each class. as given in the census or other statistics, we obtain the minimum social expenditure for the whole community. On subtracting this from the social income we have the taxable capacity—the theoretical figure, that is, of which in practice not more than 80 per cent could be taken. A variant of this method would be to calculate the total value of necessaries produced in the country, so as to derive therefrom, after correction for exports and imports, the total expenditure of the population on necessaries, which would then be subtracted from the estimated social income. This method could only be applied in countries which have a detailed census of production. The second method is to estimate directly the total expenditure of the population on superfluities and on investment, and to add the present Government revenue, less what Government servants may be estimated to be spending on superfluities, as this is included in the total expenditure of the population thereon. To do this thoroughly would need again a census of production; but in the case of India the proportion of such goods imported is so large that the import statistics may furnish a useful guide. The net balance of foods exported, and all raw products exported, must be surplus produce not required for subsistence by the people; and the character of the imports which come in exchange for them shows how this surplus income is expended. This method will at least provide a check on the first method.

Some confusion of ideas might arise from the use of the term minimum of subsistence or subsistence mini-

num in relation to taxable capacity, and consequently I have avoided using it, and have used the term minimum social expenditure. The subsistence minimum implies the least income on which people can keep alive, and it would be a serious error to regard all the remaining income as the measure of taxable capacity. It is true that heavy taxation in excess of the taxable capacity may be imposed and maintained for a short period, say five or six years; but such overtaxation tends to exhaust the sources from which it is drawn and cannot, therefore, be maintained.

5. Results to be gained from Increased Taxation.—In the foregoing section I have alluded briefly to the effects of heavy taxation amounting to overtaxation. For the purpose of understanding the relation of taxation to economic development it is more important, however, to consider carefully the effects of increasing existing taxation by moderate amounts, as this will almost inevitably be necessary in the first stage of the development of any country.

Any increase of taxation obviously reduces immediately the real income of which the individual can dispose, assuming his money income to remain unchanged; but the effects of taxation in reduction of income and of taxation based on commodities are different. Taxes in reduction of income, which are mostly direct taxes, are either assessed upon the whole income, or upon incomes from particular sources, or both. The income tax is the most important of this class, other examples being a land tax on rents, inheritance taxes on estates (which by diminishing the capital remove a portion of the income from the heir), and certain taxes on business and profits. In every such case the effect of the reduction of income caused by the increased tax is to compel a readjust-

ment of the individual's expenditure. The theory of utility teaches that every person tends to distribute his expenditure on every form of outlay so that he gets equal marginal utility (or efficiency) in each direction of outlay. When the individual's income is forcibly reduced he will curtail to the greatest extent expenditure on those commodities or forms of enjoyment for which the marginal utility functions (utility curves) are most elastic; and he will soon arrive at a new equilibrium of his monthly or annual outlay in which equal marginal efficiency in every direction of outlay is again realized with the smaller income. this case the State has simply taken some of the man's income, but has done nothing which will concentrate the reduction of expenditure on one or more particular commodities rather than others. The man is left to cut out those superfluities which are of the least marginal significance to him. The result is different when increased taxation involves taxes based on commodities, either new taxes, or the increase of existing taxes of this class. Taxes on commodities are almost invariably indirect, being shifted to the consumer with some increase or decrease of his loss. Taxes on services are sometimes direct, e.g., carriage licences, or taxes on household servants. Whether direct or indirect the effect of a tax on a commodity is to cause a loss of income to a consumer proportional to his consumption of the commodity, through its price being raised. In accordance with the principle of the distribution of expenditure according to equal marginal efficiency his outlay on the taxed commodities will be reduced in accordance with the elasticity of his utility curve for the commodity in question, and the extent of the rise of price. Some direct taxes, such as house-taxes based on annual value, or the old window and hearth taxes of England, are assessed on

a particular article of consumption, and thus by raising the price restrict the net expenditure on it, i.e., the expenditure excluding the tax, more than they restrict expenditure on other commodities. That, indeed, is the general effect of taxes on consumption—they curtail the expenditure on the particular article taxed; but as the total outlay on the taxed article including the tax usually increases, there is a reduction of the income available for expenditure on other commodities, and the expenditure is contracted in all directions so as to maintain equal marginal utility.

To complete this brief analysis of the effects of increased taxation on the individual's distribution of his expenditure, we must notice that saving for investment, with a view to obtaining a future income or capital sum is an important direction of expenditure, the present marginal efficiency of which is determined by his estimate of his future needs, his intensity of care for the future, and the rate of interest to be obtained. Likewise the marginal efficiency of expenditure on the education of children is determined by anticipation of their needs, 'the intensity of the sense of parental duty, and so forth.

It is unnecessary to consider further the primary effects of increased taxes on individuals. We may now enquire what the social results will be; estimating at the same time, so far as possible, under what conditions, and how far, the individual may be actually benefited, remain unaffected, or even suffer by the social results. These latter are of two sharply contrasted kinds: (i) those social results which are consciously sought by the Government or other organizations of the community; and (ii) those which occur unconsciously and spontaneously as the result of the tax, and are termed secondary reactions. The first class, the

¹ S. J. Chapman, Outlines of Political Economy (Longmans), 2nd edition, p. 400,

consciously sought results, are of at least two kinds:

(1) the primary reactions of the tax itself—as the decrease of consumption of alcohol due to an increase of tax; and (2) those due firstly (a) to changes of the environment of the population brought about by the expenditure of the money raised by the taxation upon providing public works, sanitation, garden city building, etc., and indirectly by education, which facilitates these improvements; and secondly (b) subjective changes which enable people more fully to assist one another and to benefit by and enjoy their improved environment. The subjective changes require moral and asthetic education.

It is impossible for me to deal with all the results which may flow from increased taxation, especially when rightly used for the benefit of the people taxed; and I shall, therefore, confine myself to a few general observations, which will relate more particularly to subsection (i)(2)(a) of the above classification of the social results, that is to say, to the relation of the beneficial effects of judicious expenditure of increased taxation to the loss suffered by the taxpayers. It is necessary, as a further preliminary, to consider the form of government in relation to the control of public expenditure.

There are two extreme types of government of which all existing governments may be regarded as medifications and admixtures: the autocratic and the democratic. The autocratic type I take to include what is generally denoted beaurocratic government, and in its perfect form its distinguishing feature is that the wishes of the subjects are not in the least consulted. They may be ill or well governed. Oppression does not necessarily go with this type of government. It is simply characterized by the fact that the people have no voice, intended or actual, in the regulation

of any public affairs or their own welfare, so far as it is affected by the general environment. They have simply to accept and submit. The essence of this type of government is the regulation of everything by external control; and as it may apply quite as much in local and municipal affairs as in the national sphere, it will be convenient to denote it government by control. We may note that this type of government appears to be necessary to secure efficiency in all unitary producing organizations, such as factories, works, mines, etc.

The democratic type of government on the other hand is that in which the organ of government! acts wholly in accordance with the wishes of the people as expressed by whatever means may be available or arranged. The usual mode of expression is by the election of representatives whose votes in a parliament or assembly reflect approximately the wishes of the people at large. Devices such as proportional respresentation, the initiative and the referendum are designed to assist the expression of the popular will. The essential distinction however, of the two types of government, from my present point of view, does not lie in the organization of the government. An autocratic potentate who should decide henceforth to govern only in complete accord with the wishes of his people, allowing freedom of expression of opinion by the press and otherwise, and holding searching inquiries, special conferences, etc., might govern in a manner completely democratic in spirit without the characteristic organization of this type.

Government by control may be very bad and it may be very good—perhaps the best form of government. A king or personal ruler may use the revenues of the state to maintain an extravagant court, numerous favorites holding sinecure offices, and a long list of

pensioners. He may waste the resources of the state in initiating futile wars, and in continually maintaining a large military force. So much of the state revenues as is absorbed by expenditure on these purposes is pure loss to the people. State money spent in the maintenance of order and provision of justice, on the other hand, yields its return to the people many times over; and so with the other usual and recognized services of government. If the controlling government proceeds to provide a good currency, easy communications, efficient and general education, sanitation, and so forth. it provides great benefits for the people. Any increase of taxation which is used to provide advantages for the people is not a burden on them but a benefit. A clear distinction must be drawn, however, between the kinds of expenditure which return an immediate or almost immediate benefit to offset the burden of the tax, such as expenditure on sanitation and medical attendance, and those of which the full benefit only accrues after many years, such as large public works, and general education. A controlling government may be benevolent, i.e., well intentioned towards the people, and ignorant, negligent or foolish, in which case its good intentions are of no benefit to its subjects; but if it combine wisdom and efficiency with benevolence it can hardly fail to be of the utmost advantage to the people. The question then arises whether a controlling government can become wise and efficient; and if so how. Experience has shown that a controlling government, though subject to many malignant influences, can be both wise and efficient. The question of how it is to acquire and retain these characteristics is one which may be considered in a subsequent section.

The democratic or popular government is totally different in its relation to the welfare of the people.

It is merely the supreme executive organ of the people themselves, and exists solely to carry out their will. Consequently the public expenditure ordered and arranged as the people desire and the burden of taxation is self-imposed with a view to obtaining the benefits of the communal expenditure. The public expenditure, whether of the state or of local authorities, thus obeys the same laws as the expenditure of individuals. The only difference is that public expenditure is ordered by the majority of electors for the time being, the majority often being composed of different persons for each kind of expenditure. Consequently it is the average ratio of the marginal utility of the benefit of public expenditure to the marginal disutility of its cost in taxation for the majority for the time being, which is in equilibrium with the average ratios of marginal utility to cost of the persons composing this majority for all their various kinds of private expenditure. persons derive some benefit from almost every kind of public expenditure, but a favorable vote of any majority decides the marginal expenditure of the community.

We have arrived then at the important conclusion that in a perfect democracy there is a marginal equilibrium maintained between public and private expenditure precisely analogous to the equilibrium between a person's expenditure in different directions. There are certain wants which all persons of a certain town have in common, such, for example, as for roads with good surface, and for street lamps to light them at night, for drains, for schools, and so forth. People cannot supply these wants individually, as the cost in proportion to their marginal utility would be far too high. When supplied by communal organization, however, the cost is so much reduced that its ratio to the marginal utility of such expenditure is lower than the

ratio for many forms of private expenditure. Consequently people willingly tax themselves to enable government or a municipality to satisfy such wants. At any time, therefore, in a perfect democracy the number, kind and intensity of the wants of the kind to be satisfied communally relatively to the number and average marginal intensity of the wants to be satisfied privately determines the extent to which people tax themselves. This economic analysis shows that in a democratically governed state the system of predetermined expenditure, i.e., the second system of finance outlined above, is adopted as a result of the balance between wants most easily satisfied by communal effort and those most advantageously satisfied by private action.

The control of expenditure is a serious weakness of the democratic system of government, precisely because expenditure is made entirely in accordance with the wishes of the people. The action of the government reflects at any one time the wants and ideas of the people. The government may be better informed than the people, it may be more far-seeing; but it cannot act in opposition to their wishes, or the government in power will be replaced by another: consequently it acts with only the average intelligence and foresight of the people as a whole. The great majority of people have difficulty in managing their own private affairs satisfactorily, and the working classes, who must form the majority of voters in any truly democratic community, often display decided want of foresight. It is no matter for surprise, therefore, if a popular government displays little foresight, and tends rather to expend money on the immediate needs of the community. Such an attitude is necessarily fatal to the interest of the future economic development of the country. What is needed is the preparation of a consistent program of development the realization of which will take twenty years or more.

It is highly important that every democratically governed community should realize its inevitable weakness in this respect; because it is possible to get over it in two ways. The first, and least likely to be successful, is for the whole community to become familiarized with the principles underlying economic development, so that they come thoroughly to understand the need for careful planning and expenditure years in advance of the realization of benefits, and also learn the necessity of subordinating purely local interests to the achievement of ultimate general efficiency. As an illustration of this last point I may instance the common experience in Australia and America where great pressure is brought to bear on the State Government perhaps through the local legislature, to get a particular bridge or branch railway constructed. This may be supplied without regard to future developments which it may rather retard than assist. India a mistake has been made in handing over the control of making new roads and light railways to District Boards, thereby encouraging the satisfaction of immediate local interests at the expense of delaying the general benefit of the community which would flow from plans centrally initiated and controlled. To educate the whole community to a sufficient understanding of the principles of economic development for them to be able to control it directly through their elected representatives is a happy ideal which it would be pleasant to see realized. Then every citizen would be discussing the plans for this and that series of new roads and feeder railways, or electric car lines, and the realization of these plans in the future would have a high degree of present marginal utility, so that the people would willingly bear additional taxation to provide the necessary preliminary expenditure and the interest on waiting for the works to come to financial maturity. I do not say that it is impossible to educate the public to a full understanding of the principles of economic development; but it must, in any country, be a slow and lengthy process, needing a campaign of propaganda lectures and literature extending over very many years.

The second way of overcoming the weakness of popular government in regard to economic development is to convince the people and their representatives not only that scientific development by means of an ordered program is enormously important, but also that it is an inherently complex and difficult business-that it needs experts to devise a program, make the necessary comprehensive plans, and arrange the finance, and that the layman cannot hope to understand it all and had better entrust the future of his country in this respect to a body of experts. Having once carefully appointed their body of experts, the popular representatives should be prepared to allot them a sufficient part of the revenues of the state, and the right of raising loans thereon, to enable them to carry out a consistent policy of development, or control the carrying of it out by the executive departments of the government.

In the case of a controlling government the matter is simpler. It has already the power and practice of disposing of the revenues of the country according to its own best judgment; and if such a government learn the principles of economic development and the immense advantages of applying them, it can easily appoint its body of experts for the purpose. A controlling government, beaurocratic or autocratic, is perhaps better situated in regard to securing the economic development of a country than any democratic government is likely to be. It can regard the economic development of its wide territories as a business proposition, just as a landlord may regard the development of his estates.

Assuming that a body of experts is put in control we are now easily able to summarise the results which may flow from increased taxation when its proceeds are used for economic development. We may assume, too, that the body of experts which would be given full control of public works and other directly economic measures, is also at least consulted about, if not in charge of, the reforms of housing and sanitation, so that its purview extends to the whole of the changes of the material environment. At any rate the advice of the development experts should be sought as regards finance of all such improvements. For the puposes of economic development we may then classify the expenditure required for all changes of the material environment in the following manner:-

- (1) That which has a directly pleasing effect, as, for example, expenditure on improved street lighting, fine city streets, new parks and public buildings. This brings an immediate return for the increased taxation in the form of direct enjoyment.
- (2) Expenditure which is productive of health, and thus of enjoyment, and of efficiency in economic production, as, for example, sanitation and garden city housing. The necessary increase of taxation here brings a gradual, but not long delayed, return which is ever accumulating at greater and greater rate as the sanitary measures become more and more complete.
- (3) Expenditure which is economically immediately productive, as for example certain new roads and railways. Here there is an immediate economic return.
- (4) Expenditure which will be economically productive after some years have passed, as certain railways, bridges, docks, irrigation works, and so forth. In this case there is no immediate return, but it may be confidently expected to grow, and to con-

tinue growing for many years, becoming amply remunerative after time has elapsed for the necessary economic readjustments to take place.

(5) Expenditure which is economically productive with slow cumulative effect; as, for example, expenditure on education, on improved land tenure, or on agricultural instruction. In this case the return is delayed, but it gradually becomes very great indeed.

It remains finally to consider the effect of increased taxation expended in the ways outlined above on the taxable capacity. It may be taken for granted that no democratically governed community is likely to tax itself to as much as one-half or even one-third of the taxable capacity, except for war, because it has not a sufficiently vivid appreciation of the social advantages of such expenditure as matures for the benefit of the future to sacrifice a great part of its present enjoyment of superfluities for this object. Although with good finance, the real present sacrifice involed in anticipation of benefits is very small, expenditure on public works, education, and so forth, does not appeal to the imagination until a reform campaign has made them a matter of politics. In most European countries before the war, the taxation was probably not more than one-fourth to one-third of the taxable capacity, except perhaps in Italy. Consequently there was much opening for increased taxation, as the war has clearly proved. even making allowance for the depreciation of money.

We must take separately each of the five classes of public expenditure outlined above in order to estimate the effect of such expenditure on the taxable capacity. Expenditure of the first class, having a directly pleasing effect, will do little or nothing to increase the social income and consequently little or nothing to increase the taxable capacity; but it is probable that such expenditure will make people willing to tax them-

selves, or be taxed, to a higher percentage of the taxable capacity, because the satisfaction they immediately get from the increased taxation will for most people be greater than the enjoyment lost of the superfluities they would have to forego. For almost all people there would be at least a considerable compensatory effect.

Expenditure of the remaining four classes tends sooner or later to increase the taxable capacity, in many cases to a very considerable extent. Let us take them separately. Expenditure for health and happiness in the surroundings of life (class no. 2), such as sanitation and better housing, produces greatly increased efficiency in mental as well as physical work, and thus in the course of a few years increases the taxable capacity by two or three hundred per cent more than the increased taxation necessary to pay for the sanitation, or the inevitable cost to the state of the better housing for the working The third class—expenditure which is immediately economically productive—obviously increases the taxable capacity immediately, and the finance minister has only to consider how the additional taxation necessary is to be assessed so that it is paid as far as possible by those persons who reap a particular benefit from the expenditure. Even if they cannot be distinguished and reached by a special the expenditure remains beneficial, and may be met by an increase of general revenues. This is particularly justified if benefits from this class of expenditure are constantly being given to different classes of population and different localities. Expenditure of the fourth class, such as that on most of the larger kinds of public works, and all such as requires many years to reach its full economic productivity, combines with expenditure of the fifth class, like education, in having a characteristic effect on taxable capacity. For the first few

years the expenditure which necessitates increased taxation, either to pay the interest and sinking fund on its cost, in the case of a public work, or for its initial recurring expenditure, as in the case of education, is not counterbalanced by any increase of taxable capacity. Such increase only arises slowly through the growth of the indirect revenue of the public work, or from the increase of the general productive efficiency people, in the Case of education. the growth of taxable capacity due to such expenditure, although it begins slowly, continues to grow at an ever, increasing rate—by compound interest so to speak—for half a century or more. The increase of taxable capacity continues to grow by economic actions and reactions at a greater rate when a number of such measures have been taken and are coming to fruition at the same time. If it were possible to single out the increase of taxable capacity due to any one public work or educational measure conceived and executed with normal wisdom and success, it would almost certainly be found that such increase after forty or fifty years would be equal to a very high percentage on the initial capital cost—anything from fifty to one or two hundred per cent per annum. A certain railway, or irrigation canal, may easily, after thirty years, repay its cost every year in increase of taxable capacity. Of course but a small fraction of such increase of taxable capacity is usually taken by the tax system. The people are able to enjoy more superfluities, which in their turn become conventional necessaries; and they are able to save and invest more, which again increases social income and so also still further augments the taxable capacity. If we were to reckon the future return in taxable capacity resulting from expenditure on education, taking as initial expenditure, say, the total of recurring expenditure during a period of three years—even Digitized by Google

supposing the eduction not of the most efficient kind—we should probably find that thirty years later the increase of taxable capacity which could be imputed (were it possible to trace it separately) to this expenditure on education would be equal to the whole three years' expenditure. This means a return, after long delay, of 300 per cent per annum, if we regard expenditure on education as capital outlay.

The results suggested by these examples are not, I think, exaggerated if we assume that the different measures are moderately well co-ordinated. Why then, it may be asked, is not every people of the earth progressing in wealth and taxable capacity at a speed which would make us all immeasurably better off within a single generation? Progress is, indeed, very rapid in some countries, but in none so great as the figures I have given would suggest is possible. The reason is two-fold-partly due to ignorance of the enormous possibilities of such outlay, together with wastefulness due to unco-ordinated and ill-conceived efforts, and partly due to the fact that capital has to be invested and a burden of expense incurred whilst waiting for the return. By means of public loans the burden of the cost of any great work is spread over its anticipated life, but the annual charge for interest and sinking fund is itself a burden which has to be met for many years by means of taxation, though each year the burden becomes smaller, because the balance not realized by direct or indirect revenue decreases. Every scheme for a new public work, or for any reform of an educational or social kind, will mean putting a burden on the tax-payers in advance of the benefit which will later accrue in the form of increased taxable capacity. It is evident, therefore, that the number of such new schemes which can be taken up at any one time is limited by the existing

margin of taxable capacity which is not already taxed, and the extent to which the people's wishes, or political considerations, allow this margin to be trenched on for the support of the annual charge of these new schemes in their infancy. Herein lies the importance of the relation of taxable capacity to economic. development. The greater its unused margin greater the opportunity of putting in hand schemes and reforms of that numerous class which take time to mature their benefits. In a democratic community the people at large need to be educated to understand this relationship, and to be willing to make some present sacrifice for the certain future prosperity of their country. In a country governed by control, if the taxation be not already heavy and wastefully used, the government may without misgiving proceed with a reasonable program of works and measures involving from year to year a gradual increase of taxation, which should be as widely distributed as possible; indeed it is the duty of a controlling government to proceed, because no other authority in the state can take the necessary measures, involving as they do legislation and the use of the administrative machinery and credit of the state.

A controlling government will do well, however, to take all possible steps to inform the public of what it is doing and why. If the public be taken into the government's confidence and realize that the necessary increase of taxation is not made for any wasteful purpose or through bad management, but for their own future good, much covert opposition will be removed and the necessary public loans will be better subscribed.

(To be continued.)

AN AUSTRALIAN IRRIGATION SCHEME

COMPILED FROM OFFICIAL SOURCES

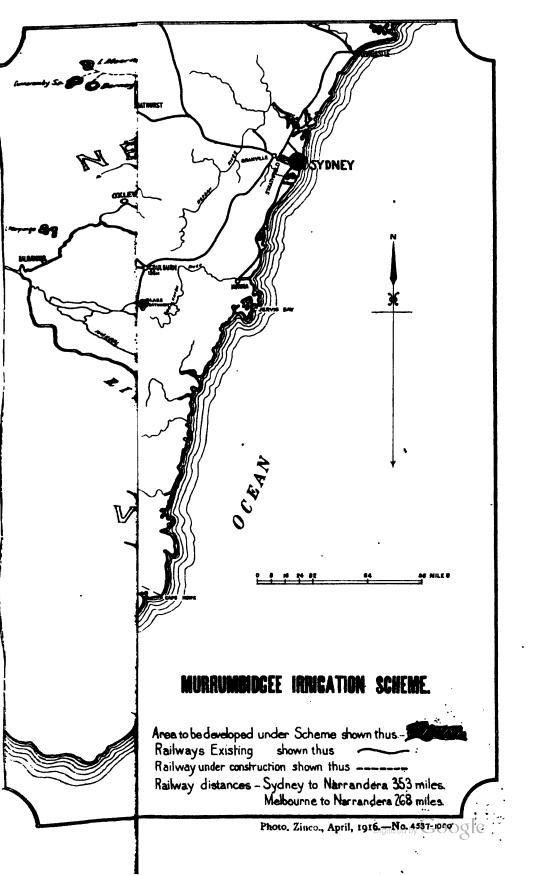
Although it may be said that India was the pioneer of canal irrigation engineered upon a large scale, and she still has a larger area under such irrigation than any other country in the world, it does not follow that she has nothing to learn from the experiments and selected methods of other countries, such as Italy and the United States, which have in recent years greatly extended their canal irrigated areas. The conditions both of climate and of the cultivating population are in many ways different: but it is at least worth while to be acquainted with what is being done elsewhere. We believe that little attention has yet been paid in India to the new canal irrigation schemes of Australia; and we hope that the following description of one of the most important of them which we have collated from official documents of the New South Wales Government will prove of interest.

The great Australian project, known as the "Murrumbidgee Irrigation Scheme," because the water is derived from the river of that name, is designed to utilize the flood waters which are impounded by a large dam. The augmented ordinary flow passes

from the dam down the river channel for 220 miles and is then diverted into the main canal at the Berembed Weir. After about 40 miles the main canal reaches the irrigated area and begins to divide into minor canals and distributaries which will supply water to nearly 300,000 acres. This national enterprize provides almost ideal conditions of settlement: excellent land at reasonable rates, a cheap and assured water supply, a perpetual leasehold tenure, and credit facilities with easy terms of repayment of loans; also State encouragement and instruction of the most liberal and practical character.

The Murrumbidgee River is one of the great tributaries flowing into the right bank of the Murray River, which divides Victoria from New South Wales. The Murrumbidgee rises on the western side of the coastal mountain range and leaving the hills flows westwards, that is inland, entirely within New South Wales, for hundreds of miles across the dry alluvial plains. In many features it is similar in physical and climatic features to the Chambal and Sone Rivers, and if we imagined these and not the perennial snowfed rivers, flowing across the arid plains of the Punjab, we should have a fairly close parallel to the natural conditions of the great plains of eastern Australia. The map inserted opposite this page shows clearly the Murrumbidgee River and the precise location of the dam and the irrigated colony.

The inception of the scheme dates back to the Report of the Royal Commission on water conservation which concluded its labors in 1887, and suggested amongst other proposals the canalisation of the Murrumbidgee River to irrigate the arid lands of its lower valley. The preliminary work of surveys and investigations of various alternative schemes occupied many years, and the construction of the canal on the





north side of the river was sanctioned by the New South Wales Parliament in 1904. The settlement of the new colony began ten years later, and in 1915 the great dam was completed. This is the first great irrigation project to be carried out in New South Wales and the preliminary work has been of a strictly scientific character, even the most minute details of the scheme having received careful consideration after the closest investigation.

Storage Reservoir

The ideal condition for economical storage, namely the existence of a narrow rocky gorge below an area of extensive river flats, having a large catchment area. was found to be realized at a point named Burrinjuck, the confluence of the Goodradigbee just below The River with the Murrimbidgee. watershed of the river, situated above the town of Gundagai. is made up of a magnificent expanse of rugged gorges and mountain peaks, embracing an area of 8,000 square miles, rising to altitudes ranging from 2,000 to 5,000 feet, while the average rainfall in the area varies from 20 to 70 inches. The open river flats above Burrinjuck are sufficient to provide a storage capable of regulating the flow of a catchment area of 5.000 sq. miles. This regulated flow will be utilized to supplement the natural flow coming from the lower catchment area of 3,000 sq. miles, formed by the Murrumbidgee and its affluent the Tumut. The actual site of the dam is a deep gorge, across which a great concrete wall has been constructed. having a maximum height of 240 feet, a length of 752 feet, with a base 160 feet thick tapering to 18 feet at the top. This will throw the waters back into lake having an area of 12.740 acres. with capacity to contain 33,000,000,000 cubic feet, or 766,324

acre feet, i.e., enough water to cover that area to a depth of one foot.

When liberated the waters from the Burrinjuck dam follow the natural channel of the Murrumbidgee for a distance of 220 miles to Berembed, where a diversion weir, consisting of collapsible shutters, has been placed to turn the water into a canal to conduct the water to the area to be irrigated. The Berembed site was chosen for the weir and head works because firstly there is here a granite bar across the river channel affording excellent foundations for the weir and facilities for controlling the canal during high floods, and secondly because it is so situated that it commands by gravitation the high class lands to be irrigated. A lock has been provided to allow of steamers passing up and down the river; and the flow of the water into the canal is controlled by a large regulator built of concrete. From Berembed the main canal runs partly through an artificially excavated channel, 50 feet wide on the bed, with 2 1 slopes, 7 feet depth of flow and a fall of 9 inches to the mile, and partly through a natural creek, until the irrigable area is reached. diverge a series of main distributaries and minor subsidiary channels which convey supplies of water to each separate holding. This net-work of canals, also the main canal, is at convenient places controlled by a series of regulators and escapes and is supplied with sluice-gates, culverts and road crossings. The escapes are meant to dispose of surplus water through natural drainage channels, so that the overflow may cause no damage, while provision has also been made for drains to carry away water left after irrigation needs have been satisfied.

The construction of this great scheme is an achievement from the engineering point of view. The

great reservoir wall is one of the big dams of the world both in regard to its height and the volume of water impounded by it. It is constructed of cyclopean concrete, i.e., cement concrete work with large stones up to 15 tons in weight, imbedded in it, and it has absorbed over 50,000 tons of cement. The concrete is divided into L and T-shaped units, each the result of one day's work, which fit into one another so as to break-joint in every direction. This gigantic form of masonry construction required a special plant for the purpose. Three cableways or suspension ropes, slightly less than a quarter of a mile in span, were utilized to convey concrete and large stones, and to handle the moving plant on the wall; a power house was built to generate electricity for driving the machinery, and a narrow gauge railway line was constructed to connect the main southern line with the site of the dam. The whole of the plant and cement required for the construction work was supplied by Government, and the very uncertain and risky task of laying the foundations was also undertaken directly by the State; but tenders were afterwards invited for the completion of the work.

Character of the Land

The irrigable area, shown by shaded lines in the map, is the one ultimately selected, and it has the following advantages: (a) The soil is of the highest quality and suitability for irrigated agriculture, (b) The area is concentrated, thus minimising the loss by evaporation of surface water, (c) It is so situated that the water is easily supplied by gravitation and the losses by percolation are reduced to a minimum, (d) The land is situated at the base of foot-hills, and is in most parts well timbered.

The soil is loamy and well drained and is of extremely fertile and varied character. The average rainfall is about 16 inches, of which seven inches fall in the winter months from May to August. The climate is both temperate and bracing and the summer heat is neither trying nor enervating. There is a marked absence of epidemics, stock diseases and fruit pests. Plant growth is vigorous and continuous and fruits thrive wonderfully. Assisted by a cheap, certain and permanent supply of water the irrigable areas are capable of being intensively cultivated and producing abundantly and profitably all manner of crops. As the official report puts it: "it will be difficult to mention any crop which the Murrumbidgee lands do not produce". All fodder crops, especially lucerne (alfalfa), which is coming to be recognised as the most valuable fodder crop in the world, grow luxuriantly. There are great opportunities for fruit growing, mixed farming and dairy industries, for lamb and pig raising, wool growing, and even for ostrich farm-The climatic conditions are stated to ideal from the agricultural and health-giving point of view, and farms are being settled at a fairly rapid pace. From July 1912, the date of the first subdivision. to 31st December 1914, more than 800 farms had been allotted and were in actual occupation, representing a total area of 36,000 acres, the settlers having a declared capital of £447,000, or Rs. 67lakhs. But as yet only a fraction of the lands comprised in the complete scheme have been taken up, for by an Act of Parliament the Government of New South Wales has acquired the right to purchase 1,340,000 acres (2,100 sq. miles) at reasonable rates, of which only 300,000 acres has as yet been so purchased. To attract settlers, the Government has offered various facilities, for Australia's greatest need Digitized by Google

is men and yet more men, and the State is ever willing to help them by supplying water, money, encouragement and instruction.

Types of farms

Farms on the irrigable areas are of varying sizes from 2 to 200 acres. The smaller farms from 2 to 15 acres are designed to meet the requirements of the vegetable grower, the small orchardist, the farm laborer, and in some cases, the business man of an adjoining town. Each acre of irrigable land has a permanent "water-right" attached to it. The great bulk of the farms range from 30 to 50 acres in size, with permanent water-rights. The larger farms of 200 acres, suitable for dairy and mixed farming, include areas up to 80 acres with water-rights attached. water-right is defined as one acre-foot-that is, depth of one foot of water over one acre, to be supplied during the irrigating season; and one such water-right is attached to each acre of irrigable land disposed of. Further volumes, if required, may be sold to the landholder under agreement. charge for water is 5 shillings (Rs. 3-12) per acre-foot, no distinction being made as regards the character of the crop watered. This charge is reduced by half for the first year, increasing yearly by 6d. (As. 6) per acre-foot to the maximum charge, 5s. charges for water will cover all the requirements of the settler, both for stock, domestic, and irrigation purposes. It is claimed that they represent one of the cheapest supplies in the world. We may note that the prevailing charge on the great canals of the United Provinces is Rs. 4 per acre for all rabi crops and Rs. 2 per acre for kharif crops, which require less water. In India the rabi crops are usually given more than one foot of water during the season; but

on the other hand the cultivators have no guarantee that they will get as much as one foot.

Tenure of Farms

. The farms are held on perpetual lease; but though the tenure is only leasehold, it is said to have the advantages of freehold without the necessity for payment of purchase money. The rental is moderate, being calculated at 21 per cent per annum on the estimated capital value at the time the lease is executed. This rental remains unaltered for the first 25 years of occupation, but is subject to reassessment every twenty years subsequently, the value being fixed at the "actual unimproved value of the land". Hence improvements made by the settler himself are not at any time subject to assessment for rent, though they may be for local taxes; and as the rent is always calculated at only 21 per cent on the capital value, the State in effect divides the increment of value with the settler. Any person who has attained majority under the law can apply, except a married woman living with her husband. The only conditions are: (1) a person can hold one irrigation farm only, (2) after the first six months the settler must reside permanently on his farm. (3) the settler must pay for already existing improvements if any. To meet the convenience of intending settlers, these conditions are modified by a variety of provisions: for instance a suspension of rent payments is allowed for the first two or three years. and payments for existing improvements and repayment of loans from the State for farm purposes are spread over a number of years. After five years' residence a settler's tenant right may be transferred to another or surrendered to the State. In the latter case the Commissioner has the power to pay compensation for the market value of the tenant right if he thinks fit, as

well as for any improvements made by the tenant. A special feature of the scheme is that every settler has a statutory right to a minimum volume of water, the number of water rights or acre-feet being specified at the time of allotment of holdings. There are also, of course, certain very reasonable obligations imposed on settlers, such as spending from their own capital a certain sum per acre on permanent improvements within two or three years.

State Assistance

Not only does the State help the farmer by providing a cheap and assured supply of water, by low rentals and payments on easy terms, but it also comes forward to offer assistance, practical and liberal to the utmost degree. The settler may have his house and farm buildings erected by the State, or if he desires to do the building himself, materials may be supplied to him through State agency and financial assistance may be given to enable him to construct permanent works, and carry out grading work for irrigation purposes on his holding. The terms of repayment are exceedingly light and may be spread over ten or twelve years. Fencing posts, fruit trees and vines, lucerne and other seeds, dairy stock, pedigree bulls, machinery and implements, guaranteed true to name and quality, may be purchased or hired on easy terms. Provision has also been made for advances by the Government Savings Bank for agricultural and other legitimate purposes on the mortgage of the leasehold. The State also offers railway concessions in fares and freight to intending settlers going to inspect or settle with their families and belongings. For actual development and encouragement of industries the Government has established model factories for butter and cheese making, vegetable and fruit

canning, and bacon curing, all run on the most up-to-date lines. There are also several demonstration, experimental, and seed-testing farms; and experts of the agricultural department give advice and assistance free of cost. The railways, which are owned and controlled entirely by the State, carry settlers' produce at low rates, and the irrigation area has easy and direct access to all the important markets of Australia, and to ports for foreign shipment.

The Murrumbidgee irrigation scheme is so planned as to obviate the hardships and deprivations so commonly experienced by pioneers and settlers who venture far away and subdue the "bush" or jungle. Owing to the smallness of the majority of holdings, and the contiguity of model towns and villages, the social conditions on this irrigation colony are as nearly ideal as can be conceived. There is already a considerable and rapidly increasing population which is not only scattered over the farms but also concentrated in the towns which have been established at suitable points in the colony. Two of these towns, named Leeton and Griffith, have been planned upon a large scale on the most modern town-planning lines by Mr. Griffin of Chicago, U.S.A., who is in charge of the planning of Canberra, the new capital city of the Commonwealth of Australia. These towns and the surrounding closely settled districts will have all the usual advantages of urban life, such as good roads and sanitation, electric light and power supply, and the telephone carried right out to the farms; also well equipped primary and secondary schools. There are parks and recreation grounds, and sites for churches and places of amusement besides the commercial and shopping streets. These new towns remind us of Lyallpur and Montgomery in the Panjab canal colonies, but their planning is in some ways more scientific, a more intimate connection

with the surrounding country being assured by a system of radially arranged roads and railway branches. Throughout both the towns and irrigated farm lands the State Departments have made the utmost use of every device of modern civilization, not only for improving the efficiency of agriculture, but also for improving the social atmosphere. The farmers will reside on their own farms, but they will never be more than a very few miles from a small town, nor will they be far from one another. Numerous metalled roads will enable the produce to be marketed cheaply, and materials and commodities needed for the farming and for the life of the family can be obtained from the railway station at a small expense.

In conclusion it may be said that the scheme is a truly notable example of a colonization enterprize planned out in every detail and providing the necessary variety for every type of settler. It shows what may be achieved by the thorough co-operation of the Agricultural and Public Works Departments with the Civil and Educational Departments of the Government.

Formerly irrigation in Australia was regarded as merely an adjunct to the pastoral industry for the purpose of raising fodder crops during periods of drought, and this involved extensive local irrigation; but it gradually came to be recognized that "water in Australia was as gold, and was so to be husbanded that the utmost got from it". So a new policy result was laying out concentrated irrigation settlements on lands most suitable for the purpose of intensive cultivation was adopted. This involves "a minimum length of channel, minimum loss of water, and concentration of holdings". The Murrumbidgee project is the outcome of this policy; and the scientific thoroughness with which the whole scheme has been carried out from the preliminary work down to the allotment of holdings

shows how solicitous the State is for the individualprosperity of the settler and for increased utilization of the natural wealth-producing potentialities of the country. It is a State enterprize pure and simple, and will be a paying proposition in the long run. The State comes forward at every turn to help and encourage settler, for the success of the settler is the success of the State. Under an enlightened and progressive policy, railways and irrigation are now looked upon as the most important forces for the quicker development of the natural resources of the country, and the areas capable of irrigation are being splendidly supplied with both. The unanimity of the political parties in Australia on this subject is a guarantee for the continuity of the present policy. Australia has a great and glorious future before her; and with the aid of modern shipping appliances to give her an easy access to the world's markets, and a continually rising demand for her products, she will, after the war, rapidly bring that future into being.

CURRENT NOTES

The outstanding events of economic interest in India since our last issue have been the Budget, the War Conference, the growing shortage silver, and the purchase of enough to coin crores of rupees from the United States, the issue of the second war loan, the coinage and issue from Bombay of Indian gold coins, and the increasing difficulties of the railways in coping with traffic, which has led to severe restrictions and to the appointment of Directors of Civil Supplies for nearly all the Provinces and Central India. During April it was necessary to raise exchange to 1s 6d in sympathy with the rise of the price of silver which appears now to have been stabilized at almost 49d in London by the contract of the United States Government with American producers. Finally, as we write, comes the issue of the Chelmsford-Montagu Report, with important proposals for the increase of Provincial autonomy, which if carried fully into effect can hardly fail to have a stimulating effect economically as well politically.

Sir William Meyer's last Budget is remarkable not for new taxation—none being required—but for the confident anticipation of an increased yield of all the great heads of revenue in spite of the war.

Decreases are anticipated only in the cases of opium, stamps and salt, the latter because orders which were paid for in advance last year are months in arrear, and no more are to be booked for the present. The total revenue estimated in last year's Budget was 148 crores; the revised estimate for last year, based on actual figures for the greater part of the year, shows nearly 165 crores received, and the present Budget estimate is put at nearly the same figure—163\frac{3}{4} crores. The following table compares the Budget with the Revised Estimates:—

	REVISED ESTIMATES, 1917-18			В	BUDGET 1918-19		
	Imperial	Provincial	Total	Imperial	Provincial	Total	
	Rs. lakhs	Rs. lakhs	Rs. lakhs	Rs. lakhs	Rs. lakhs	Rs. lakh	
Revenue	114,84	50,04	164,88	111,45	. 52,83	163,78	
Expenditure	106,28	47,28	154,56	107,58	52,13	159,71	
Surplus	8,56	2,76	10,32	3,87	20	4,07	

As no untoward circumstances likely adversely to affect the revenue have yet developed it seems likely that the Budget estimates will be exceeded by a substantial amount and the surplus may very likely be as great as last year. The fact is that budgetting for a year in advance is an impossibility in war time because emergency expenditure, or a sudden decline or accession of revenue may at any moment be met with. In reality the big surpluses which are shown by the accounts for the past two years and may be anticipated for the present year are more than half illusory, because the extraordinary profits of the railways arise in great measure from the suspension of a large part of the normal repairs and renewals due to difficulties of obtaining material in war time. The sur-

pluses have in fact been accumulated in London by sales of Council Bills, and are there invested, and the Finance Member states that £20,000,000 from them are reserved in London for the purchase of railway material, when markets and ships are again free.

During the past few months a pronounced scarcity of silver has arisen and there has been a heavy drain on the Paper Currency Reserve. Last January there were still 15 crores of silver in the Reserve in India, and 27 crores of gold; but in May the silver had been reduced to less than 5 crores and the gold to 22 crores, although during the latter month the total note circulation had expanded to over 105 crores. The metallic portion of the reserve in India was still above 25 per cent of the total circulation, and therefore quite satisfactory if Government felt disposed to encash notes in gold. But owing to the existing internal premium of eight to ten per cent on gold they could not do this freely, without risk of losing the whole. The gold is in fact reserved for disbursement for essential war purchases. Consequently there began in May a restriction of the encashment of notes, many treasuries and sub-treasuries being permitted to cash only comparatively small quantities for each person. Silver consequently rose to a slight premium in the bazars in several places of from one up to three per cent. Early in June Government found it necessary to instruct all post offices to make payments of money orders in notes only; but this order was cancelled in July as the arrivals of American silver in the same month, which is now being coined as rapidly as possible, have done a great deal to ease the situation, though silver remains scarce.

A dramatic turn in the currency situation has passed almost unnoticed by the public. Some months ago it was announced that a Branch of the Royal Mint would be established in Bombay to coin sovereigns from Indian gold, thereby conceding as a war measure what the British Treasury, or the Mint authorities, had consistently refused in spite of the demand by Indians, arising from national sentiment, to have gold coined in the country. On the 14th June, however, Government promulgated an ordinance to enable it to coin gold mohurs of the same weight and fineness as the sovereign. These new coins are unlimited legal tender at 15 rupees. The design on the obverse is the head of His Majesty with the legend "George V. King-Emperor"; on the reverse words "15 Rupees, India" and the date surrounded by an ornamental border. It is intended to begin coining sovereigns in Bombay when all arrangements are made, probably in August and the important decision to issue an Indian gold coin has arisen from accidental circumstances. The silver stocks having run so low Government found it necessary to use some of their considerable stock of gold for the purchase in the Punjab of wheat for export. The necessary dies for stamping sovereigns not having been despatched from England, dies for an Indian coin which could legitimately be made in India, were prepared, and coinage was begun by melting up foreign gold coins. The coinage of gold from Indian mines will be delayed a few months until the plant for refining it can be completed.

REVIEWS OF BOOKS

RELATING TO INDIA

Life and Labour In a Deccan Village. By H. H. MANN, K.I.H., Principal, Agricultural College, Publications of the University of Bombay, Economic Series: No. 1. Bombay: Oxford University Press. 1917. pp. v. 177. Price Rs. 2.

In this volume, which is issued by the Bombay University as the first of an Economic Series. Dr. Mann has collected and edited the results of a comprehensive economic survey of a village in the Western Deccan, of which a short account was given in the article he contributed to Vol. I., Part 4, of the Indian Journal of Economics. In it the agricultural economy of an Indian village is exhibited under the microscope, as it were, so that we see a hundred details that we had never seen and had never thought of looking for before. This alone makes the work of first-rate importance to the student of rural economics in India.

The village which is described lies eight miles north-west of Poona, and five miles north-west of Kirkee. Its preximity to the former accounts for the importance of vegetables among the village crops; whilst, in the year under review, nearly one-third of the total male population of the village were employed in the ammunition factory at Kirkee. these circumstances the economic character of the village cannot be regarded as typical; but in its agricultural character it is said to be absolutely typical of dry-land villages in the Western Deccan.

Two-fifths of the printed matter is contained in Chapter IV, which deals with the natural vegetation, crops and Digitized by GOOSIC cultivation. A point which seems to call for remark in the inventory given of the implements of cultivation in use is the small number of ploughs-viz., 25 amongst 109 actual cultivators. This suggests either that the subdivision of the land is not in actual fact as great as it appears; or (which is, indeed, the fact) that a considerable number of those who cultivate land in this village live and keep their implements elsewhere. The number of carts (viz., 20), on the other hand, is somewhat unusually large; and the village is well supplied with draught cattle. The truth is, of course. that a cart and a pair of bullocks earn a good deal for their owners, independently of agriculture, in a village situated as this is close to a big city. An exceedingly full and instructive account is given of the chief crops and their cultivation, a section being devoted to each, prefaced by a couple of introductory sections which deal, respectively, with the significant variations in the acreage under different crops over a series of years, and with the system of rotation or intermixture of crops which is followed.

The geological characteristics, the soils, the waters and the drainage of the village form the subject matter of Chapter II. In Chapter V particulars are given of the live-stock belonging to the village, the estimated value of which amounts to Rs. 10,500, or an average per family of close on Rs. 100. The estimated daily yield of cow and buffalo milk is 80 seers, of which sometimes as much as 60 seers is sent for sale to Poona, where it sells at 6 seers for the rupee. Carting brings in Rs. 1-4 per day.

In Chapter III some intersting particulars of an historical character are given regarding land revenue assessments and village inams. The latter half of the chapter contains statistics showing the extraordinary degree to which the village land is subdivided into separate holdings, and the holdings broken up into separate plots. The number of separate holdings (exclusive of inams) at the present time is 116, giving an average of 6½ acres per holding; while for the years 1840-1 and 1797-8, assuming the figures to be comparable, the corresponding totals were 54 holdings, averaging 14 acres each, and 28 averaging 26½ acres, respectively. These figures are significant; but even more disquieting is the fact that, at the present time the number of separate plots is five times that of the holdings and seven times the number of actual

cultivators. The problem presented by excessive subdivision tends to some extent to solve itself; but the very device, viz., sub-letting, by which to a certain extent the effects of subdivision are neutralised, increases the fragmentation of the land in the hands of the actual cultivators. There is, bowever, this hopeful feature in the situation, that while little can be done to put a stop to subdivision without some radical change in the Hindu laws of inheritance, fragmentation is an evil which can be remedied, and has in other countries been remedied, by less drastic legislation.

Coming now to the economic condition of the village, which is the subject of Chapter VI, the following is a summary of the results which Dr. Mann arrives at. estimated average income per head is Rs. 44, while Rs. 48 to Rs. 44 per head is taken as the standard of necessary The latter figure is exclusive, however, of the expenditure. interest payable on debts, which amounts to the extraordinarily high figure of Rs. 5 per head, the estimated capital indebtedness per head amounting to Rs. 26. No information, unfortunately, is given of the causes of this indebtedness; nor is anything said as to how far the figures may be regarded as reliable. Including this item of expenditure, it appears that the village, as a whole, is incapable of paying its way and at the same time maintaining a decent standard of living. Eight families. however, occupy a position in which there is an average excess of Rs. 27 per head over necessary expenditure (including interest on debts); and in the case of 28 other families there is an average excess of Rs. 11 per head. The remaining 67 families (or 64 per cent of the total number) show, on the other hand, an average deficiency per head of Rs. 13. "This economic enquiry into the condition of the people of a typical dry Deccan village," Dr. Mann concludes, "is disheartening. The debts are a crushing load on the people. but even were they removed more than half the families would still not be able to pay their way."

It has already been pointed out that, economically, the village in question can by no means be regarded as typical. Waiving this point, however, there remains the question as to how far the picture given of its economic condition is a convincing one. Let us look, first, at the income side of the village balance-sheet. Accepting the method (an unsatisfactory one in the circumstances of Indian agricultural

economy) by which an estimate of the net cash returns from cultivation is arrived at, there are two things to note. In the first place, although these estimates are based on average outturn, they are reduced by roughly 16 per cent to allow for poor soil and inferior cultivation. What is more, in the year for which particulars are given, 1915-16, the amount of fallow was greater than any recorded (in the table on p. 67), this being due, it appears, to unfavourable sowing conditions. So far as one can judge, the net returns for this year, as estimated, represent certainly 10 per cent and possibly as much as 15 per cent less than those ordinarily to be expected from cultivation in this village. Whether or not the necessary correction of the figure for income from cultivation would remove the apparent insolvency of the village, it is impossible to say, but it would go some way towards it. Turning to other sources of income, it is disappointing to find that no particulars whatever are given of how the large sum under this head (Rs.13,500) is made up. We know that employment in the Kirkee ammunition factory is an important source of income; other sources are carting and the sale of milk in Poons. An estimate is made. however, of the income derived from the sale of cowdung cakes in the Poona market (Rs. 600), and from fruit and babul trees (Rs. 409). Turning to the expenditure side of the village balance-sheet, it would appear that the cost of food-stuffs is put extremely high. Is Rs. 3-4 per maund the ordinary "net village price" for jowar; Rs. 5-0 for pulses: and Rs.7-0 for rice and wheat? It is not sufficient answer to such a criticism to say that the village produce has been valued at the same prices, even if this were true in all cases; for less than two-fifths of the total village income comes from land. A less serious criticism is that Rs.24-8 appears to be altogether too liberal an estimate, in a budget of "necessary expenditure" (p. 134), for cooking oil and spices.

On the whole, it cannot be said that the account given of the economic condition of the village is as careful, or as complete, or as convincing, as the rest of this very interesting and valuable work.

Industrial Decline in India. By Professor Balkrishna.
Allahabad: The Star Press, 1917. pp. 408. Price
Rs. 2-8.

Professor Balkrishna advocates fiscal autonomy for India and a preferential tariff within the empire, as he believes that the free trade policy of the English nation has resulted in killing the indigenous industries of India and in impoverishing the people on account of a want of variety in their occupations.

The author looks upon the decay of industries and the decline of towns with a feeling of despair; and though he does not bring forward a constructive plan of reform in this volume, he produces data of facts mainly from the Census Reports of India to establish his contention of progressive ruralization in all the provinces of India. one can be pleased at the phenomena of this so called ruralization; but we think Professor Balkrishna is very pessimistic in this respect. Towns can evolve but slowly, and the progress of such industries as coal, cotton, tea, jute, mineral oil, railways-a side of the picture ignored by the author-cannot in our opinion be called an industrial decline. The Indian mills as well as foreign competition have killed the hand-weaving industry, which was more or less specialized in certain localities and supplied the needs of a limited local market, and we cannot think of any other substantial industry having been killed by foreign competition; as a matter of fact in our opinion India was never industrially great. The note of despair that dominates the book becomes eloquent when in Chapter VI estimates regarding the average annual income of the agriculturist on the basis of the net yield of agricultural produce are given at the extraordinary low figure of Rs. 19 a year head. Along with this we commend to our readers a recent calculation by Professor E. A. Horne who puts the average annual income at Rs. 42.1 The difference is in part accounted for by the fact that Professor Balkrishna estimates the total annual net yield for India, after the cost of production has been deducted, at a very low figure, and estimates for his divisor, the rural population, at 90 per cent of the total population—a very improbable figure.

¹ Bengal Economic Journal, Vol. II. (1918), pt. 1, p. 89.

The style is not that of an impartial student of economic phenomena, but that of an enthusiast who wants to create an impression by rhetoric. If the author had combined an unbiassed judgment with the hard work that he presumably did, the results would have been more satisfactory. There is no doubt that there is much room for improvement in the agricultural and industrial development of this country, and the author's point of view is worthy of consideration; but we have no liking for his method of parading figures of all kinds and quoting passages from books and documents of various dates to prove the theme of his sermon "Poverty perpetuated". A patient selection of passages without reference to their context or reliability can be made to support any general proposition in an apparently conclusive manner.

Early Revenue History of Bengal. By F.D. Ascoli, M.A., I.C.S., Oxford: The Clarendon Press. 1917. pp. 272. Price 4s 6d.

This is an exceptionally interesting and useful little book for students of the economic and administrative history of the eighteenth and early nineteenth centuries. An introduction describes the scope of the book; and the chapters following it relate successively: (1) the rise of Bengal as an administrative unit from the annexation by the Moghals till 1765 when the Company was appointed Dewan of the Provinces of Bengal, Bihar and Orissa; (2) the characteristics of the Moghal revenue system, and their successive revenue settlements; (3) the British revenue administration from 1765 to 1786, which is divided into three periods: hesitation, centralization, and completion of centralization; (4) the period of decentralization, first part, 1786-1790; (5) the Grant-Shore controversy—Grant's case; **(6)** Shore's case. (7) The Shore-Cornwallis controversy, leading up to the Permanent Settlement; (8) The objects and effects of the Permanent Settlement.

The first part of the book closes with a useful synopsis of events; and the second part consists of a reprint of the famous Fifth Report of the Select Committee of the House of Commons, which was issued in 1812, so far as it relates to Bengal. At the end of the book is a very useful glossary. The book is very clearly arranged and divided into

sections with headings in heavy type. It should be consulted by all M.A. students of economics and be in every college library.

The Agricultural Problems of India. By Rai Bahadur GANGA RAM, C.I.E., M.V.O., M.I.C.E., of Lahore. Simla: Manzur Ali, at the Army Press. 1917. pp. iv, 155.

The author of this book has already earned a wide reputation throughout Northern India as a bold and successful farmer. On retiring from service in the Irrigation Branch of the Public Works Department of the Punjab, he bought a large farm in a canal colony near Lahore, and has farmed it so successfully for many years with modern agricultural methods and machinery that he is popularly credited with having made profits amounting to lakhs of rupees. Two years ago he undertook another and much larger project, involving pumping of canal water to irrigate an uncommanded area in the new Lower Bari Doab Colony, upon terms of which most capitalists and successful agriculturists would have been shy. It is pleasing to find that, in spite of advancing years, his activities are entering on phase. After pursuing "enlightened self-interest", and thereby benefitting his fellow countrymen in strictest accordance with the doctrine of laissez faire, he is now becoming an active philanthropist, assisting in the development of a Department of Agriculture for the Hindu University at Benares, and interesting himself in movements of economic and social reform. This has led to his writing the book under review which is the outcome of a keen analysis of the weaknesses of the Indian economic fabric. Coming from a man of proved ability and experience it commands respect, and will in certain directions have unusual authority.

In the Introduction the author immediately strikes the right note and clearly defines the true line of economic progress in India. The panacea for India's poverty recommended by Mr. Dadabhai Naoroji and publicists of his school was reduction of public expenditure, particularly the Home Charges. "The proposed remedy was, I fear chimerical and unpractical," our author replies; "population will increase, civilization will advance, and with it the obligations of the Government and the needs of the people alike will grow. Where are now the savings effected by Lord Ripon's

Finance Committee of 1886, and indeed of other Commissions before and after appointed to effect reduction of expenditure? Long since sucked into the vortex of more costly and ambitious schemes and the ever increasing needs of the administration. The true remedy as it seems to me is not to handicap Government, retard public improvements, starve public works and even jeopardise the safety of the Empire by a misconceived policy of retrenchment; but to devise new and expand existing sources of income and to be ever on the alert to harness the discoveries of science to tapping great natural resources which an all-wise Creator has placed within our reach. The philosophy of the school from which I differ is, if I may say so with all humility, one of ressimism; the philosophy which I would advocate is, if I may say so without egotism, one of optimism.

"Agriculture, it may be truly said, is India's most ancient heritage; and amidst the galaxy of potentialities on the horizon of her future there is none of brighter or more assuring promise. Interests and activities outwardly more dazzling have hitherto absorbed too large a share of the attention of the more enlightened of my countrymen, and if I can succeed in placing agriculture in its true importance before their minds I shall consider myself amply rewarded."

The body of the book is divided into ten chapters occupying only 57 pages, which are followed by statistical tables of considerable value filling nearly 100 pages, very largely the result of original computations from official documents. The first nine chapters cover an extraordinarily wide range of questions-economic and statistical from a scientific point of view, administrative and financial, and practical; and they suffer from being disconnected. author first attacks the question of the poverty of India from the agricultural statistics, and estimates from the amount of food required per head per day of different classes of the population at different ages what would be the necessary consumption for the whole of India, assuming all the people to have sufficient food. Adding to human consumption an estimate for the grain requirements of cattle and horses, and allowing for wastage and seed, and exports, he finds that 77 million tons of grain foods were required in India in 1912-13, whilst the harvests of 1912-18 produced 76,860,000

tons. The estimate of human consumption is based on the census of 1911, and we must point out that an addition of approximately one per cent ought to have been made for the growth of population. A more serious criticism, however, is that the harvests fluctuate so much from year to year, and stocks of grain are so commonly carried over from one year to another, that nothing less than a three years average of the agricultural produce compared with consumption based on an estimate of the population at the middle year can give a trustworthy result. The author has opened up an important line of statistical inquiry, but has reached no conclusive result.

The second chapter, on the "present position of agricultural prosperity and effects of famine", contains most useful statistics of the yield of different crops per acre in different countries of the world and in various parts of India, from which striking conclusions are drawn as to the unrealized possibilities of the cultivation of the ordinary staple crops in India. The author believes there is in many parts of India a "persistent continuance of misdirected efforts to raise crops unsuited to the soil or climate"; and he correctly, as we think, regards this as a legacy of the old regime when each district had to be self-sufficing in its products.

The third chapter is devoted to the "Forces which retard the progress of agriculture and proposals for their remedy", and it falls into three parts. The first part deals with the evil effects of the Hindu law of inheritance through the subdivision and fragmentation of holdings; and he proposes that a law shall be enacted to prevent partition below a certain minimum area-in the Punjab, 25 acres for irrigated land, 50 acres for unirrigated, this being sufficient for two ploughs. For this as an ideal we have nothing but praise, for it means a standard of living comparable with that of European countries. In the next section on "The Land Revenue and its burden on the people", the author makes many true observations, but draws from them we think mistaken proposals for a remedy. He quotes a proposal which he first made in 1911 to abolish land revenue and substitute a tax on all produce of the land exported by rail from the locality. The author has not realized that by thus discouraging transit by rail, he would not only tend to increase the average cost of haulage, but would also effectually

hinder the realization of the ideal which he has in a previous chapter advocated, namely applying all land to the cultivation of the crops for which it is best adapted. In fact the economic losses would be much greater than the present administrative expenses and worries to rayats in collecting the revenue which he wishes to save. The third section of this chapter deals with the method of charging water rates, and the proposed system of volumetric supply which is now being experimented on in the Punjab.

In Chapter IV the author proposes that zemindars be allowed after each new settlement a chance to redeem land revenue for ever on a lump payment of 30 times the revenue. This money is to be invested by Government at 4 per cent as loans to Government banks which will use it to finance industries. The excess of the interest over the revenue lost by redemption is to be accumulated at compound interest; and he shows by an elaborately worked example that Rs. 9,000 paid to redeem the revenue of 300 acres would after 90 years have accumulated to Rs. 24,129, in spite of assuming original revenue increased by 25 per cent at a new settlement every 30 years before deducting it from the interest. There are two weaknesses in the proposal: (1) any investment made by the Government is more risky than its own revenues and some small deduction must be made as insurance against loss; (2) Government does actually in many cases secure an increase of revenue of 30 to 33 per cent (not 25 per cent) at a new settlement, and has every reason to look forward to taking a larger increase in the future, owing to the rapidity with which prices in general are rising. The first weakness would be met if Government were to invest the proceeds of redemption in the construction of railways, canals, roads and bridges which will safely pay in increased revenue to the country more than four per cent; and the second weakness could be met by requiring a higher price. If zemindars were willing to pay forty times their revenue order to commute it (but not local cesses) for ever the money would be worth accepting; especially if the proceeds were used to develop the country. In England the Government over a hundred years ago adopted commutation of the land tax as means of raising funds; and it has been open to landlords to commute ever since, the price

being kept high and being varied from time to time in accordance with the current rate of interest.

In his fifth chapter the Rai Bahadur has many sensible things to propose for extending the work of the Agricultural Departments, and points out that the annual expenditure works out at only one pice (3 pies) per head of the population; though it would be about 4 pies per head if he took the population of British India as divisor. he should have done. He very rightly advocates expansion of the Department to ten times its present strength as to personnel and activities. In the next chapter follow suggestions for improvements and extension of canal irrigation; and in the seventh chapter we find a rather brief and sketchy outline of the possibilities of agriculture as a profession. Chapter VII notices the loss of rich manure to the country by the export of bones; and Chapter IX consists of a few paragraphs on the position of agriculture in the Native States. Chapter X is a summary of conclusions, and a long list of problems which the author would like to have referred to a Royal Commission to be appointed to inquire into the conditions of Indian agriculture.

There are 21 tables of statistics in the second part of the book, which cannot fail to be of use to students of Indian agriculture and national economy. A great deal of labor has evidently been devoted to compiling them. We trust that there will be a sufficient sale of this book to encourage the author to bring out a revised and enlarged edition, in which these statistics (which mainly relate to 1912-13) will be continued for later years.

Seventh Annual Report of the Patna College Chanakya Society (1916-17). The Kuntaline Press. pp. 72.

We have once again the pleasure of reviewing a report which is a record of the useful work done and of the progress made by the Chanakya Society during the session 1916-17. Thirteen ordinary meetings were held during the year, in which the reports of the expeditions undertaken and of the work done by the individual members were read and discussed. The special feature of this year's report is the recording of the results of inquiries into the local industries of Bahar towns, such as the gold lace industry of Patna, the iron foundry of Dinapore, oil mills,

flour mills and aerated water factories. Visits were also paid to the various industrial concerns like the Fruit Preserving Company of Muzaffarpore, the Tirhoot Moon Button factory of Mehsi and the Lime Works at Dehri.

Reports of the actual working of the village co-operative credit societies are useful only if care is taken come in contact with real facts instead of placing a full reliance on what the members may say, since such quiries lose their value if they are not carefully sifted. We would recommend the preparation of a questionairre for the purpose. The nine family budgets published give evidence of an economic enquiry of practical nature. We are inclined to think that a more detailed and comprehensive enquiry would be desirable even though the number is limited to fewer families. There is still much room for improvement in the preparation of the family budgets, and if our suggestion 1 regarding prefacing each budget by indicating the methods of collection had been acted on, the results would have been more satisfactory. We are still in the dark as to how annual expenditure or annual income were ascertained and what special data were used for the purpose. It would be an improvement if the village statistics were to be given in a more detailed form; for example the money values of exports and imports of the village Mahendarnagar (page 37) do not throw any light whatsoever on the commodities exported or imported—a piece of information which would be of economic value. We are glad to notice however that an additional instruction has been embodied in the appendix regarding the stating of the fact whether the family budgets are typical of a particular class. We may again congratulate Professor E. A. Horne-the chairman of the Society-and the members, for the increasing success and popularity of a society that is doing such useful work in Indian Economics.

GOVERNMENT PUBLICATIONS

Review of the Trade of India in 1916-17. DEPARTMENT OF STATISTICS, INDIA. Calcutta: Superintendent of Government Printing, India. 1917. pp. iii, 81, vi, and five full-page plates. Price As. 12.

This annual volume is again of great interest to the economist. During the year under review the progressive effect of the War developed further. The initial shocks were felt in 1915 and thereafter commenced the rearrangement of Indian trade on a basis of greatly increased prices abroad and reduced shipping facilities. In 1916-17, the imports of merchandise increased in value by 13 per cent over the previous year and the exports by 21 per cent, the figures being for the first time greater than the average for the last five years of peace. The increase over peace time is due to higher prices, however, as the want of ships has considerably reduced the gross quantities of produce entering and leaving the country.

The volume contains the usual illuminating diagrams of a popular character; and very interesting and useful summary descriptions of the course of trade in the principal commodities such as imports of cotton goods, the exports of hides, raw cotton, oil seeds and coal. At the end the movements of gold and silver coin and bullion are dealt with, and there is a useful explanation of a tabular statement of the balance of trade. Part II contains the usual summary table of imports and exports, a reprint of the Import and Export Customs Tariff and statistics relating to various matters such as index numbers of prices, tonnage of shipping, coast-wise trade and movements of agricultural produce by rail.

Financial Statement and Budget, 1918-19. Finance Department. Delhi: Superintendent, Government Printing, India. 1918. pp. iv, 340. Price Rs. 2-8.

This is by far the most interesting of the annual publications of the Finance Department, containing, as it does, a complete review of the revenue and expenditure of the Imperial and Provincial Government, of the operations necessary to maintain the cash resources and of the currency and exchange difficulties. The volume follows the usual form, except that the improved procedure of the Imperial Legislative Council whereby the Finance Member's speech follows

the debate on the Financial Statement is reflected in the order of print. The student will find in the volume the speech of the Finance Member, followed by the Financial Statement for 1918-19 in the form of tables. Then comes the report of the debate in the Imperial Legislative Council and the Finance Member's Budget speech. The Financial Statement is made on the 1st of March and the budget, which is a revised Financial Statement, is presented to the Council three weeks later with revisions proposed by the Council and suggested by the later information as regards the collection of current revenue. There follows a lengthy Memorandum explaining the details of the estimates separately under each heading; and the volume ends with three appendices: (1) a pro-forma account of expenditure on Delhi Province, (2) an estimate of revenue and expenditure of India for 1918-19 giving details of Imperial and Provincial figures, (3) Commercial and financial statistics. This Financial Statement is the last to be issued by Sir William Meyer whose notable tenure of office expires this year at the end of August.

The Third Wage Census of the United Provinces (taken in August, 1916). Director of Land Records and Agriculture, United Provinces, pp. 9.

A census of urban and rural wages is taken every five years. The tables printed compare the wages in 1916 with equivalent figures in 1911 and show in almost all cases more or less substantial increases. In fact there is only one decrease recorded, which is in the money value of a grain-wage paid to agricultural labor in the Meerut district. It is noted that grain rates are tending to be replaced by cash wages. Returns were received from the supervisor kanungos for 7,408 villages, of which returns for 183 were discarded. The instructions given were that the wages paid by cultivators to ordinary healthy men between 40 and 45 were to be reported. So far as possible the wages paid by influential landlords who get labor at cheap rates were eliminated. is rather confusing that in the same tables the wages are stated in rupees, annas and pies, in others in annas and fractions, or in pice. The use of the latter unit in statistical averages seems to be confusing and unnecessary as the figures might easily be converted into annas.

REVIEWS OF BOOKS

ENGLISH

British Incomes and Property by J. C. STAMP B. Sc., (Publications of the London School of Economics) London: P. S. King & Son. 1916. Price 12s. 6d.

This is one of the series of monographs by writers connected with the London School of Economics. author in his preface says "I have not attempted to make the book 'reasonable' in the ordinary sense, but to provide a work useful for reference. The British Income Tax returns form the bases of the study. It is pointed out that these returns are the by product of a system of taxation with the object "of raising revenue with maximum financial result and with minimum of inconvenience. evasion and expense." Such a system of taxation has not given a body of statistics which are consistent sequences and comparable over a number of years. A change in law or a new method of assessment makes a break in the sequence, although the figures may appear under the same tabular head in the published official returns. This every investigator knows and he will thank Mr. Stamp who has studied these legal and adminstrative changes for the tables in which he gives consistent sequences under the various schedules. These figures can be used with more confidence in economic investigations in which British Incomes are required.

Part II gives some application of these statistics in the study of the national income, its distribution, the national capital and the taxable capacity of Ireland. There are numerous tables, appendices and references.

Balance of the Gold Standard Reserve in India and in England on the Last day of each month

Held in the following form		80th September 1917	81st October 1917	30th November 1917
_	~	£	£	£
1.	Gold in India	15,000	Nil	Nil
2.	Cash placed by Sec. of State at short notice	6,062,154	6,021,448	6,000,521
8.	British and Colonial securities (value as at 80th September 1917)	27,481,499	28,026,578	21,965,658
4.	Securities since pur- chased (at cost price)	Nil	4,529,871	5,657,068
	Total	88,508, 658	83,580,892	88,628,242

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

Year.		80th September	81st October	80th November
		Rs.	Rs.	Rs.
1915		19,87,22,000	15,71,82,000	12,46,57,000
1916	•••	17,64,62,000	16,68,05,000	15,58,87,000
1917	•••	20,76,43,000	18,58,27,000	16,50,05,000
1918	•••			
		30th	81st	80th
Bank Rates.		September	October	November
		per cent	per cent	per cent
Bank of Bengal	•••	5 '	5	5
Do. Bombay	•••	5	5	5
Do. Madras		6	6	6
Do. England		5	5	5
Exchange Rates.		s. d.	s. d.	s. d.
On Demand		1 $5\frac{1}{82}$	1 $5\frac{1}{82}$	1 $5\frac{1}{82}$
Telegraphic Transfers	•••	1 4 81 82	1 4 31	$1 4\frac{81}{82}$
8 Months'	•••	1 $5\frac{18}{39}$	1 $5\frac{19}{82}$	1 $5\frac{81}{82}$
6 Months'		1 5 23 32	1 5 23	1 5 28
Government Paper (8½ p.c.)		67-12 to 68	68-12 to 69	69-4 to 69-8
Bar Silver in London			$42\frac{1}{4}d$	42 2 d

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN ENGLAND ON THE LAST DAY OF EACH MONTH

81st December 1917	81st January 1918	28th February 1918	81st March 1918	89th April 1918
£	£	£	£	£
Nil	Nil	Nil	Nil	Nil
6,000,075	6,018,719	6,014,499	6,000,499	6,000,090
18,888,185	18,888,185	18,833,135	28,452,948	26,006,881
			(value as on 31st March 1918)	
8,982,468	8,965,088	9,128,177	Nil	2,518,297
B8, 765,67 8	33,816,942	88,970,811	84,458,422	84,525,268

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

81st December	81st January	28th February	81st Ma rch	80th April
Rs.	Rs.	Rs.	Rs.	Rs.
18,02,05,000	•••	•••	•••	•••
14,59,72,000	16,49,29,000	17,27,91,000	18,02,41,000	15,77,68,000
16,81,19,000	18,68,40,000	19,59,87,000	22,94,41,000	24,72,64,000
•••	22,87,44,000	25,18,88,000	22,91,95,000	17,50,00,000
81st	81st	28th	81st	80th
December	January 1918	Feb. 1918	March 1918	April 1918
per cent	per cent	per cent	per cent	per cent
ຸ 5	6	6	- 6	6
6	6	6	6	6
6	7	7	7	7
5	5	5	5	5
s. d .	s. d.	s. d.	s. d.	s. d.
1 $5\frac{1}{89}$	1 $5\frac{1}{89}$	1 5 1/82	1 $5\frac{1}{32}$	1 6 1/16
1 4 81 82	1 4 81 82	1 4 81 \	1 4 81 82	1 5 81 82
1 5 18 82	1 5 18 2	1 5 18 82	1 5 18 82	1 6 7 82
1 5 28 28	1 5 23 82	1 5 28 28	1 5 29 22	1 6 3
69	69	68-8 to 68-12	67-2 to 67-6	65 to 65-4
48\d	43½d	$42\frac{1}{2}d$	45§d	49 1 d

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE OF PAPER CURRENCY, 1917-18

	80th September 1917	81st October 1917	80th November 1917
	Rs.	$oldsymbol{R}s.$	Rs.
Total amount of notes in circulation 1	1,08,42;92,965	1,14,76;86,775	1,12,92;58,980
Deduct ²	Nil	Nil	Nil
RESERVE			
Coin and Bullion			
In India:			
Silver coin	28,89;02,424	28,89;50,627	24,10;75,086
Gold coin and Bullion	15,85;61,496	21,90;38,884	24,64;77,918
Silver Bullion under coinage	68;74,751	53;74,884	48;48,470
In England : —		•	
Gold coin and bullion	1,42;50,000	1,42;50,000	1,42;50,000
Securities (at purchase price) :—			
Held in India	9,99;99,946	9,99;99,946	9,99;99,946
Held in England	51,48;19,251	51,47;89,025	51,47;97,157
Total Reserve	1,08,43;76,965	1,14,77;66,775	1,18,02;58,980
Deduct 3	84,000	80,000	10;00,000
Net Total Reserve	1,08,42;92,965	1,14,76;86,775	1,12,92;58,980

¹ Figures to the left of the semi-colon indicate the number of lakks.

² Deduct—withdrawn from circulation by Foreign circles, and in course of remittance to circles of Issue.

⁸ Deduct-Amount due on Bills drawn by one circle on another.

ABSTRACT OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE OF PAPER CURRENCY, 1917-18

22nd December 1917	91st January 1918	28th February 1918	· 81st March 1918	80th April 1918
Rs.	Rs.	Rs.	Rs.	Rs.
1,09,05;47,164	1,04,81;68,218	1,08,46;04,525	99,79;87,599	1,05,96;05,166
28;16,519	Nil	Nil	Nil	Nil
,				
19,10;89,701	14,98;57,458	12,60;80,551	10,46;77,470	7,2 5; 60,2 95
26,44;84,615	27,19;16,765	28,59;51,871	27,00;04,248	22,68;98,799
70;08,487	18;28,572	45;26,860	38;90,148	66;32,804
67;50,000	67;50,000	67;50 ,000	67;50,000	44;92,770
9,99;99,946	9,99;99,946	9,99;99,946	9,99;99,946	9,99;99,946
51,48;02,887	51,47;98,027	51,47;89,297	51,47;88,787	59,18;68,552
1,09,06;11,645	1,04,88;68,218	1,03,80;98,025	1,00,01;10,599	 1,05,99;58,166
28;75,000	20;00,000	84;98,500	21;78,000	8;48,000
1,08,82;86,645	1,04,81;63,218	1,08,46;04,525	99,79;87,599	1,05,96;05,166

PRINCIPAL CONTENTS OF FOREIGN JOURNALS

ECONOMIC JOURNAL

(Quarterly Journal of the Royal Economic Society. London: Macmillan and Co., Ltd.)

SEPTEMBER, 1917

I. ARTICLES-

The Nature of the Industrial Struggle, by Prof. S. H. FOXWELL.

Housing Conditions in London, by Helen Bosanquet.

The Depreciation of Gold, by Prof. G. Cassel.

Agricultural Organisation in Ireland, by L. SMITH-GORDON

II. REVIEW-ARTICLES-

After-War Problems, by Prof. F. Y. EDGEWORTH.

DECEMBER, 1917

I. ARTICLES-

Industrial Unrest, by Prof. Edwin Cannan.

Economics and the New Agricultural Policy, by C. F. Bickerdike.

Inflation, by Prof. A. C. Pigou.

Loans and Subsidies in Time of War, by J. H. Clapham.

The Financing of Industry and Trade, by Prof. H. S. Foxwell.

II. NOTES-

Village Economic Surveys, Madura, South India—Employment of Boys in Agriculture—New Taxation in the United States, etc.

Book-Reviews:—Early Revenue History of Bengal, by F. D. ASCOLI, Economic Problems of Peace after War, by W. R. SCOTT, and Economic Annals of the Nineteenth Century by WILLIAM SMART.

THE JOURNAL OF POLITICAL ECONOMY

(Published monthly from October to July by the University of Chicago, U. S. A.)

JULY, 1917

The War and Women's Work in England, by EDITH ABBOT.

The Uniform Bill of Lading, by C. S. DUNCAN.

Medical Benefits under Workmen's Compensation. II., by
J. M. RUBNOW.

NOTES—Completion of the New Loan—Amendments to Federal Reserve Act—Trust Powers of National Banks.

Book-Reviews:—Civilisation and Climate by E. HUNTINGTON, and Property and Society by A. A. BRUCE.

OCTOBER, 1917

The Legality of the Combination of Competitors under Sherman Act, by SUMNER A. SLICHTER.

Some Advantages of the Logarithmic Scale in Statistical Diagrams, by JAMES A. FIELD.

NOTES—The Completion of the "Liberty Loan"—Growth of War Expenditures—Trading with the Enemy—Legislative Control of Food—Investment Effects of the War—Reserve Banks and the War.

The Causes of Unemployment: A Communication, by H. STANLEY JEVONS.

Book-Review:—The Development of Transportation in Modern England, by W. T. JACKMAN.

NOVEMBER, 1917

Fundamental Factors in War Finance, by FRANK F. ANDERSON.

Taxation versus Bond Issues for Financing the War, by E. DANA DURAND.

Industrial Conscription, by HAROLD G. MOULTON.

NOTES—Increase of Federal Reserve Membership—Progress of Public Financing—The Gold "Embargo"—Control of International Trade.

Book-Reviews:—Social Diagnosis, by MARY E. RICHMOND and Mohamadan Theories of Finance by P. A. AGHNIDES.

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(Published Quarterly by the American Economic Association, Secretary Prof. A. A. Young, Ithaca, N. Y.)

SEPTEMBER, 1917

Reserve Situation in the Federal Reserve, by RAY B. WESTERFIELD.

Fall River Sliding Scale Experiment, by STANLEY H. HOWARD.

The War and Trans-Pacific Shipping, by ABRAHAM BERGLUND.

Early Regulation of Public Service Corporations, by M. H. HUNTER.

Price Problem in the Lumber Industry, by WILSON COMPTON.

QUARTERLY JOURNAL OF ECONOMICS

(Published by the Harvard University, Cambridge, Mass.)

MAY, 1917

Financing the War, by CHARLES J. BULLOCK.

International Trade Under Depreciated Paper. A contribution to theory, by F. W. TAUSSIG.

The Regulation of Wages in New Zealand, by M. B. HAM-MOND.

The Literacy Test and Its Making, by HENRY PRATT FAIRCHILD.

Co-operation among the Mormons, by Hamilton Gardner. Flax: The Fiber and Seed, A Study in Agricultural Contrasts, by WALTER S. BARKER.

Also Review of Kemmerer's Modern Currency Reforms.

AUGUST, 1917

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Marketing Agencies between Manufacturer and Jobber. by L. D. H. WELD.

The Use of Private Tokens for Money in the United States, by B. W. BARNARD.

Gasoline Prices as Affected by Inter-locking Stockownership and Joint Cost, by LEWIS H. HANEY.

A Study of Mitchell's Inquiries into Prices, by B. W. KING.

Unionism in the Iron Industry: A Decadent Organisation, by H. E. HOAGLAND. General Intelligence and Wages, by ROBERT M. WOODBURY.

NOTES--The Content of the Value Concept (A. P. Usher) Also review of KLEENE'S Profit and Wages.

NOVEMBER, 1917

The War Tax Act of 1917, by F. W. TAUSSIG.

The Value of Money, by A. C. PIGOU.

The Concept of Normal Price in Value and Distribution, by F. H. KNIGHT.

Value Theories Applied to the Sugar Industry, by PHILIP G. WRIGHT.

The Adjustment of Labour Disputes in the United States during the War, by Louis B. Wehle.

The Revenue System of Kentucky: A Study in State Finance, by ANNA YOUNGMAN.

DECEMBER, 1917

The Law of Balanced Return, by ARTHUR S. DEWING. The Basis of War-Time Collectivism, by J. M. CLARK. The War Revenue Act of 1917, by ROY G. BLAKEY. Canadian War Finance, by O. D. SKELTON.

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- Annual Report of the Indian Merchant's Chamber and Bureau for 1916-17. Bombay: The Secretary The Indian Merchant's Chamber and Bureau. pp. 293.
- Report of the Proceedings of the Second Entomological Meeting held at Pusa, 5th to 12th February 1917. Calcutta: Superintender t Government Printing. pp. xii, 340. Price Rs. 3. or 4s. 6d.
- Speeches and Writings of Sir D. E. Wacha. Madras: G. A. Nateson and Co. pp. 496,44,iv. Price. Rs. 3.
- Progress and Problems of Industrial India. By S. AMBRA-VANSWAR. Trichnopoli: The Brahmanand Press. pp. 30.
- Economics of Indian Agriculture and Industry. By KESHAV LAL M. OZA. Lahore: Punjab Printing Works. pp. 28. Price. As.2.
- Proceedings of the Board of Agriculture in India, held at Poona on the 10th of December and following days.

 With Appendices. Calcutta: Superintendent Government Printing 1918. pp. 185. Price As. 18 or 1s. 3d.
- Indian Currency and Banking Problems. By Mohan Lal Tanan and Khushal T. Shah. Bombay: Ram Chandra Govind and Son. 1917, pp. viii, 4,322.
- Governance of India. By Kushal. T. Shah. Bombay: Ram Chandra Govind and Son. 1917. pp. xxiii, 845, xi. Price Rs. 8.
- The World's Sugar Supply—Its Sources and Distribution. New York: National Bank of Commerce. 1917. pp. 46.
- Introduction to the Study of Indian Economics. By V. G. Kale. 2nd edition. Poona: Aryabhushan Press. 1918. pp. vii, 514. Price Rs. 5.

INDIAN JOURNAL OF ECONOMICS

Vol. II. Part 3. 1918

THE

INDIAN INCOME TAX

ITS HISTORY, THEORY, AND PRACTICE

S. M. PAGAR, M. A. DIRECTOR OF STATISTICS, BARODA STATE

PART I. DIRECT TAXATION IN INDIA

I. DIRECT TAXATION UP TO 1860

1. The Early Hindu Period.—The term "assessed taxes", presumably borrowed from the English fiscal practice of the eighteenth century, was used until 1914, in the Finance and Revenue accounts of the Government of India to designate a variety of taxes. By April 1903, however, all such taxes were either repealed or abolished with the exception of the income tax, which was first introduced in 1860 and lasted only for five years. The permanent income tax, with which we are mainly concerned in this monograph dates from April 1886.

Probably there is no part of India where taxes on arts, trades, and professions are as new to the people as the income tax was in England, when first

proposed by Pitt as a regular part of his financial These Indian imposts are known to us as the sayar or transit or octroi duties, the moturpha taxes or license duties, and the thathameda or capitation tax in Burma. The beginnings of these taxes are buried in the past and all we can do here is to trace, at least some of them, as far back as possible.

Our main authority for this period is the famous Hindu Law Code, the Manava-Dharma, a perennial source for savants and scholars of Hindu culture in all its aspects. According to the author of this code we understand that the King is justified in levying direct taxes on land, merchants, artisans, and mechanics. Revenue was collected both in kind and in coin.

On cattle, gold, and other moveables, the State's share amounted to one-fiftieth, which in time of war or invasion might be increased to one-twentieth, 2 on land one-twelfth, one-eighth, and one-sixth the gross produce, according to the quality of the soil and the labour necessary to cultivate it. land tax might also be raised to one-fourth in case of war and no doubt was an important source of The king might also take one-sixth public revenues. of the clear annual profits of wood-cutters, butchers, dairy-men, perfumers, apothecaries, cane-basket-makers, stone-cutters, potters, and tanners; 8 the mechanics and artisans, as well as sudras who subsist by manual labour, were required to work for the State one day in each month. 4 Besides the king may levy duties on the profits of sales, 5 claim escheats for want of heirs, 6 and demand from one-twelfth to one-sixth of the treasure-trove, and one-half of the same in the absence of an owner, the other half to go to a priest.

I Laws of Manu, Chap. VIII, verse 180.
 5 Ibid., VII, 127.

 2 Ibid., X, 118 and 120.
 6 Ibid., IX, 189,

 8 Ibid., VII., 131 and 182.
 7 Ibid., VIII, 85-39.

 4 Ibid., VII
 188.

Briefly stated the tax system consisted of the following—(a) a tax on the produce of land, (b) a series of taxes on personal property of every description, (c) a tax on sales, (d) a kind of poll tax like the Roman and French corvees, and finally (e) succession duties.

Of this most complete and comprehensive system of taxation James Mill in his much quoted, but seldom read, History of British India rather injudiciously says: 1 "the revenue of the sovereign arises almost wholly from the artificial produce of the land." Land was the main source, but other taxes were not wanting to round out the tax system: As between direct and indirect taxes, the author of Manu-Smriti seems to be perfectly impartial.

As regards the effects of this legislation an impartial writer says that "it is certain that under the influence of this ancient legislation the Aryan population have had many prosperous centuries." The same author is even more emphatic about the agricultural and commercial presperity of the time. He says: "for many centuries before and after the Christian era, India enjoyed a real prosperity, agricultural and commercial, which she is regaining today only in part under the domination of the Anglo-Saxons."

2. The Mohammedan-Hindu Period.—(a) The Mohammedan Period. The Mohammedan period began in India in the twelfth century of our era and may be said to have lasted till the first half of the eighteenth century. It was, however, very seriously interrupted by the growth of the Hindu power, especially in the southwestern part of the country under the Mahrathas in the seventeenth century. For the purpose in hand we shall very briefly summarise the growth and development of direct taxation during this period.

¹ Mill, J. History of British India, Vol. I, p. 299.
2 L'Impot dans les diverses Civilisations. By E. Fournier De Flaix,
Premiere serie, 1. p. 44.
8 Ibid p. 48.

Industries when under the control of powerful gilds of artisans, were very famous for their artistic wares during this period. The Indian trade with the nations of the Mediterranean basin was carried on evermore on a larger scale than before. But the State needed more money to carry on its multifarious activities including that of spreading the Moslem faith with the sword if possible. It is not therefore surprising to find many imposts levied on the subject population.

The following is a somewhat partial list of the imposts 1 levied by the Moghul Emperors, beside the ancient land revenue; (1) the jizia! 2 or the capitation tax levied on non-Mohammedans according to their ability at Rs. 40, 20 and 10 each; (2) the port duties, similar probably to our customs duties; (3) a tax per head on pilgrims; (4) a tax on timber cut from the State or private forests, with a view to conserve forests; (5) presents to be given to the Emperor; (6) a tax on the various classes of artificers; (7) Tahsildars' fees, the money given to the tax gatherer; (8) Complimentary offerings on receiving a lease and the like; (9) a fee for testing and exchanging coins, that is, a mint charge; and (10) market tolls.

Besides these exactions there were the taxes on sales of cattle, on hemp, blankets, oil, raw hides, weights and measures; there were the special license duties on butchers, fishermen, brokers, tanners, gamblers, passports, and turbans, on the purchase and sale of a house, on salt made from nitrous earth, on the manufacture of lime, spirituous liquors, and dye-stuffs from plants. All these imposts must have almost choked Indian industries and commerce for many years to come.

¹ Abul Fasl—The Ain-i-Akbari, Vol. II, p. 66.
2 Beveridge, A. The Emperor Akbar, Vol. I, pp. 275-76. For the History and method of levying jisiah, see Dr. N.P. Aghnides' elaborate dissertation on Mohammedan Theories of Finance in Columbia University studies, Vol. LXX., pp. 528, et seq. 8 Ain-i-Akbari, p. 67.

Mohammedan Emperors, and contemporary of Queen Elizabeth, took away most of these imposts, including the hated jiziah levied on infidels, and built himself an everlasting name. In order to compensate for the loss of revenue, he, with the help of his famous Hindu finance minister, Rajah Todar Mull, introduced a ten year settlement in the case of the land tax and substituted money payments for payments in kind. It was one of the minutest surveys ever carried out and became the basis of Modern surveys and settlements, at least in Bengal. 1

The effect of the abolition of the various vexatious exactions was naturally felt in the country's commerce and industry. Never before or long after this period does India seem to have enjoyed such material prosperity, so much so that it is estimated that at the time of Akbar's death there were no less than 35 millions of treasure in the Agra fort alone, and that the total gross treasure in all the treasuries of Akbar's empire may be given at 70 to 80 millions sterling of modern money.²

Probably this treasure was the greatest inducement for the Emperor Shah Jahan, the grandson of Akbar, to hand down his name to posterity as the builder of the most exquisite Taj Mahal and other artistic public buildings, together with canals, the latter to insure continued agricultural and commercial prosperity. He, however, does not seem to have exhausted this huge treasure left by Akbar.

It was left for Aurangzib, to squander the remainder of this treasure in fighting the wars of succession and in suppressing smaller nationalities, in order to bring the whole of India under one empire and

¹ Ibid., p. 88, et seq.
2 Smith, V. A.: The Treasure of Akbar, in the Journal of the Royal Asiatic Society of Great Britain and Ireland, 1915, pp. 231-43, the rate of conversion being Rs. 10 to a sovereign.

thus to realise the dream of the universal peace. But all this meant more money. Akbar's treasure was exhausted. Some of the old imposts were resorted to, among them the humiliating jiziah, which created more trouble than Aurangzib had ever anticipated. The jiziah, not the amount of the tax as such, but the method by which it was assessed and collected, was at any rate one of the causes that finally led to the downfall of the Moghul Empire in India.

(b) The Later Hindu Period.—A revival of Hindu power was attempted by the Mahrathas, who, according to Prof. J. Sarkar, the well known Indian historian of the Moghul Empire under Aurangzib, were the only people among the Hindus to resist the onslaughts of Islam.

The Mahrathas, true to their tradition, always believing in small nationalities and their rights, were thoroughly convinced that the establishment of a decentralised government was the only thing possible in India. They were, at least in the beginning, averse from attempting to rule a continent like India from one central place like Delhi or London. This idea of decentralisation and the establishment of local taxation for local purposes were their greatest contributions to Indian history, which Britain today is slowly but surely putting into practice.

They were specially particular about land revenue. Leases to small peasant-proprietors extending over 70 years were not uncommon. The peasants could appeal directly to the finance minister in case of over-assessment of the land tax.

Besides the land revenue, there were other taxes, the revenue from which was termed as Nukta-bab or the extroardinary revenue as distinguished from the land revenue. These taxes may be briefly stated as follows: 2 (1) the Mohturpha, a tax on merchants,

¹ G. Duff, History of the Mahrathas, Vol II, Appendix. 2 Duff, G. Hist. of the Mahrathas, Vol. II, p. 238.

manufacturers, professions and houses, which came down to modern times and was not abolished until after the Mutiny, at least in Southern India; (2) a tax on certain rent-free lands; (3) a tax on profits of grass lands; (4) the Pandhari tax levied on the offerings of pilgrims at religious fairs, which was later cenverted into a license tax on petty artisans, and was only abolished in 1903 in the Central Provinces; (5) the customs duties; and finally (6) tributes from the conquered regions, known as the Mahratha chauth or the fourth.

The British period.—(a) India under the East India Company.-Without entering into anything like a detailed discussion as to the proper selection of the year which marks a dividing line between the Moghul and British epochs we shall simply appeal Shall we adopt 1757 to facts. our 88 point for British period, because accidentally in that year Clive won the battle of Plassey? Or shall we choose the year 1761 when the Mahrathas suffered their tragic defeat at the hands of Ahmad Shah Durrani, that marauding chieftain of the Afghans, thus clearing the road for the establishment of British rule in India?

The students of economic and constitutional history of India are wise, however, in taking 1765 as the starting point of British period in India. It was in this year that the titular Mohammedan Emperor, Shah Alam II, being unable to control his representative (Nabab) in the then Provinces of Bengal, Bihar, and Orissa, granted the diwani of these rich provinces to the East India Company, that is the right to collect and administer the revenues for the paltry sum of twenty-six lakhs of rupees per annum to be paid to the imperial treasury at Delhi.

The later diplomatic achievements of the company and its feats of arms against the unorganized natives are well-known. In spite of this it must be admitted that India under the Company, though centralized and subjected to the control of the Governor-General at Calcutta, and a Court of directors in London, was not really consolidated and unified. The Presidencies of Bengal, Bombay, and Madras published separate accounts and the taxation of this period was anything but uniform all over the Company's dominions. 1833 the Company was both the trader and the ruler. Whatever it lost in trade was made up from the Indian territorial revenues. and also from the traffic with China. In that year the company's monopoly of China trade and other trading all its functions were abolished by Parliament. The Company, however, continued to pay its regular dividends in London amounting to over £600,0001 until after the rebellion of 1857 when its total stock and other obligations were converted into the Indian public debt.

The company very naturally continued the tax system handed down to it by its predecessors. Land revenue still formed the bulk of the revenue; even as late as 1853 this source contributed more than half of the total gross receipts. Indirect taxation such as salt, opium, customs, transit duties, stamps, registration, excise on spirituous liquors, and tobacco contributed not less than one-third, if not more. Thus the Company's Government always tried to keep an impartial equilibrium between direct and indirect taxation.

The land revenue in Bengal was settled once for all in 1798 and the Court of Directors in approving this limitation on the Government demands from land declared that "the true policy requires us to hold this

East India Accounts and Papers, 1855-56.
 East India Accounts and Papers, 1852-53. The gross receipts were £28,610,000, and out of this £15,365,000 were from land revenue.

remote dependant dominion under as moderate a taxation as will consist with the ends of our Government." Later on these views seem to have been changed and the temporary settlements, lasting from 15 to 30 years, were effected in all other Indian provinces.

Among the direct taxes besides the land under the Company, some of which were also levied under former Governments, may be mentioned the following important imposts: sayar, an Arabic word meaning universal, included many irregular receipts mainly collected by provincial officers from cultivators especially, in Bengal.2 It also included town, duties, duties at bazaars, and collections from Gaya and other places of Pilgrimage, all of which form part of municipal revenues.

In Madras, on the other hand, the term sayar was used to designate transit duties. In the Deccan again sayar was divided into two branches (a) the Moturpha, a tax on professions, and implements collected by village officers, and (b) the Bullooteh, a tax upon the fees in kind received by the village artisans from the cultivators. All these were later commuted for a money tax or cess on the land revenue and are known today as the provincial rates.

There was again a tax known as the wheel tax, levied on buggys, carts, and chariots, confined to Bombay only. Collections were farmed to the highest bidder and the tax was very oppressive in amount. 8 At present this tax is entirely handed over to municipalities.

group of taxes known as Pilgrim coming down from remote times, consisted of a number of imposts; (a) a poll tax upon all pilgrims resorting not only to the great temples, but to many of the smaller pagodas and shrines of fame; (b) a toll on all

Select Committee on East-India Affairs, 1831-32. Vol. IV. on Revenue, p. vii.
Select Committee, 1831-32, Vol. IV, p. xiv.
Select Committee, p. xv.

the offerings brought by the devotees with them. The government usually farmed out these to a renter for a lump sum; (c) fixed sums to perform the penances; and finally (d) license fees for various shops, booths, and stalls during religious festivals. 1

These various taxes were recognised to be a great hindrance to trade and commerce. Accordingly Lord Cornwallis, the then Governor General of India under the Company consolidated the sayar into the transit This was the beginning of that and town duties. 2 monstrous inland tariff wall extending over 1,500 miles from Attock in the north to Cuttack in the southeast, which was abolished only in 1878 by Lord Lytton with the aid of Sir J. Strachey, regular seacustoms being substituted for them. 8 It is astonishing that a free trading England should have tolerated such a thing for nearly a century!

The Moturpha, levied on trades, industries, and occupations, and chiefly found in Madras after 1833. formed part of the provincial revenues since 1843 on account of the increase in the salt duty for the This tax in Madras, bringing Central Government. an annual revenue of over £100,000 was not abolished until after the Mutiny.

In summing up for the preceding three periods one frankly admits that the trading and the professional classes, Pandits and Shastrees, Maulvis and Kazis contributed little or next to nothing to the public treasury.

On close study one other fact also becomes prominent and it is this that India left to herself would have developed in the long run a system of general property tax and import duties, rather than import duties and an income tax. To be sure



Select Committee, p. xvi.
 Sir Ch. Trevelyan's evidence before the Fawcett Committee of 1871,
 Vol. III, Q. 764.
 Strachey, Sir. J., India and its Administration, p. 179.

an income tax would have come, but probably it would not have come so early as it did.

(b) India under the British Crown. A careful examination of the accounts of the East India Company for the twenty years preceding the great Revolution 1 of 1857 at the end of which India was transferred to the British Crown from the hands of a dividend distributing concern, shows that all these twenty years were not necessarily years of deficit in Indian finances as is commonly believed. To be specific, the last seven or eight years of the Company's rule show an average annual surplus of over £1,000,000, while the actual surplus for 1856-57 ending on 30th April was no less than £386,000. 2

But the Mutiny in May 1857 disorganised and paralyzed the revenue system in almost the whole of Northern and Eastern portions of India, and precipitated a huge deficit for the succeeding years. A resort to new sources of revenue and to retrenchment in public expenditure was welcomed by the new Imperial Government. We are for the first time ready to discuss the beginnings of a real modern income tax in India. 8

The year 1860 marks a new epoch in the Indian financial annals, not only for the introduction of the income tax, but also for the genuine attempt on the part of Mr. James Wilson and his two associates, purposely drawn from the British Treasury to introduce a sound financial system. Budgets and financial statements were made more accurate and trustworthy than before, not that there was no system under the

¹ It was really a revolution in as much as the new Imperial Government in India was made directly responsible, at least technically to the majority party in the House of Commons.

² East India Accounts and Papers, 1854-1858.

3 By India is meant only British India. The French and Portuguese possessions in India, the semi-independent states of Nepal and Bhutan, the various feudatory Native States, comprising in all more than one third area of the whole of India and more than one-fifth of the whole population are not subject to the Indian income tax. All this means few assessees and small yield from the tax.

Company, but it was not consolidated. An adequate accounting and auditing system was also provided. until 1914 there was no such thing independent audit in the Finance Department of the Government of India. 1

In the pre-mutiny Indian finance, whenever there was a deficit, an addition to the public debt was generally resorted to. Invariably the deficit was due to irresponsible control of army finances and to the obnoxious guarantee system of building railways. The expenditure on both of these items was always controlled from England.

Turning to the fiscal situation of 1860 we find ourselves facing я. deficit variously estimated £7.000.000 £9.000.000 ² of which more than to £3,000,000 were to be raised bv means of new taxes, and the rest to be made up by reduction in expenditure. Mr. J. Wilson, with an official experience gained at the British Treasury and the Board of Trade was specially sent to bring order out of the Indian financial chaos. He introduced what may be called a triple assessment in 1860 *:--(1) a tax on incomes of all kinds; (2) a system of licenses for arts, trades, and professions; and (3) a tobacco tax. Out of these the last two were dropped partly because of the difficulties of levying them and partly because they were later found unnecessary. Import duties had already been doubled in 1859 from five per cent to ten per cent. Similarly the salt duty had also been raised in each and every province. 4

Before resuming the story of direct taxation, it may not be out of place to summarize here the chief characteristics of the fiscal policy pursued by the Government of India.

Even this is very insufficient, but the new step is in the right direction, see Financial Statement for 1914-15.
 The actual deficit was only £4,021,385 (Fawcett Committee, 1871, Vol. 1, p. 709).
 East India Financial Measures of 1860.

⁴ For exact increases in all provinces, see Statistics of British India, sixth issue, pp. 78-74. Digitized by Google

First, the post-mutiny finance is characterised by the free-trade policy, which, though not inherent in the present system of Government was vigorously pursued till its climax in 1882 under the finance ministership of Sir Charles Baring (the late Lord Cromer) and Governor-Generalship of Lord Ripon, only opium, salt, arms, liquors, and spirits being left on the Indian tariff. The present reaction in favour of protection dates back to 1888 when for the first time a small duty on petroleum was levied. In March 1894 the general rate on imports was fixed at five per cent. Foodgrains, raw materials, and machinery are admitted free of duty. The duty on cotton goods however was reduced to three and one-half per cent in February 1896 and a corresponding excise duty on domestic cotton goods was also levied. The general import tariff was not disturbed until the European War. 1916 to meet the increased military burdens the general ad-valorem rate of 5 per cent fixed since 1894 was increased to 7½ per cent except that on sugar which was fixed at 10 per cent. There was also a substantial curtailment of the free list. On account of the pressure from the Home Authorities the cotton schedule was not disturbed but owing to the increased. military demands the Indian Government raised the cotton import duties on cotton goods from 3½ per cent to 71 per cent without correspondingly increasing the excise duty on cotton goods. The export schedule was also modified in 1916 and as a result the duty on tea was fixed at Re. 1-8-0 per 100 lbs.; in the case of jute the duty on raw jute was at Rs. 2-4-0 per bale of 400 lbs.; manufactured jute was charged at the rate of Rs. 10 per ton on sacking and Rs. 16 per ton on Hessians. The export duties on jute were doubled in 1917.

Secondly it was in this period that the much abused guarantee system of building railways was

discontinued and the Government of India began to build its own railways and irrigation systems. All this meant an enormous increase in the sterling debt of India.

Finally the direct taxation introduced in 1860 has been continued and developed till a permanent income tax was established in 1886. The salt duty was decreased and made uniform at two rupees a maund $(82\frac{2}{7})$ lbs.) throughout the country. Not until 1907 was it substantially reduced so as to make healthful living possible for the poorer classes.

II. DIRECT TAXATION SINCE 1860

- 1. The Emergency Income Tax.—The income tax law of 1860 was the direct result of the desire on the part of the new Imperial Government to compensate the losses suffered by the British and other trading interests, and also to make up the deficit. For the first time in the history of the world it was demonstrated that India, an oriental country was ready to meet with equanimity and courage the greatest engine of western finance—a modern income tax.
- (a) Provisions and rates. The Indian Income Tax Act of 1850 follows very closely its British model, that being the only successful income tax then in operation. It differs, however, from its English prototype in duration and adaptation to local conditions. It is an act "for imposing duties on profits arising from property, professions, trades and offices." It contains four schedules as opposed to the five in the British Act, which are as follows:—
- 1. Profits and gains of every kind arising from all lands and houses in India, thus combining the British schedules A and B.
- 2. Annual profits from any profession, trade or employment in India irrespective of nationality.

¹ The new duty was fixed at Re. 1 per maund. In 1916 this duty was again raised to Re. 1-4-0 for war purposes.

- 3. Any interest, annuity, or dividends, payable in India to any person whether residing in India or elsewhere, finally—
- 4. Every annuity, salary or pension payable to any person residing in India.

As regards the rates it may be said that the Indian law corresponds to the English law of 1803, which was a percentage tax rather than so much in the £. The rates were three and one per cent for the Central administration, and the Provincial administrations respectively. The latter were asked to devote the proceeds to public works of local character such as roads, canals or local railways.

(b) Assessment and Collection. In the rural districts the assessments were made by the Panchayat, a local committee, usually appointed by the collector of a district. Each person liable to the tax was required to render an unsworn statement of his approximate income. The appeals were taken to the collector. The Deputy Collector assessed profits and income not exceeding Rs. 1000 a year subject to appeal to the collector in the event of surcharge. The Collectors of the land revenue, then, were solely entrusted with the execution of the Act and the management of duties. In passing it may be noted that public sentiment and tradition were adhered to, more so than now.

As regards the assessment and collection in large towns, special commissioners and collectors were entrusted with the work. In all cases assessors, then as now, were appointed by the local authorities.

(c) Exemptions. The authorities seem to be very careful about exemptions. It was provided that (1) persons with less than Rs. 200 a year income from all sources would pay no tax at all; again (2) persons with less than Rs. 500 income, but amount-

ing to Rs. 200 and over, paid at the rate of 2 per cent and were exempt from the duty of 1 per cent for public works, etc.; (3) all Government property was exempted; (4) officers and soldiers of any military or police force, whose pay and allowances were less than those of a captain of infantry were exempted; (5) naval and marine officers were free from the tax in respect of travelling and other allowances: (6) Ryots and persons in the occupation of lands for agricultural purposes and actually engaged in their own cultivation, paying less than Rs. 600 yearly as land revenue, were exempted; (7) persons occupying houses for the purposes of habitation only and holding the same at a rack-rent; (8) deductions on account of repairs—a sum equal to the rent of such houses for six months in every three years were provided; (9) property devoted to charitable and religious purposes; (10) life insurance premiums not exceeding one-sixth of the income. 1

- (d) Avoidance of double taxation. Income from property situated at home, i.e., in Great Britain and paying the English income tax was liable not to the Indian tax, even though received in India. Similarly the pensioners and those in the receipt of allowances from the Government of India, paying the English tax were exempt to avoid double taxation. It may be added that temporary residents were taxed only if they stayed in India for more than six months. 2
- (e) Fiscal results and the abolition of the tax. If one were to judge the fiscal results from the vast number of inhabitants, then about 143,000,000 British India alone, it must be admitted that they were very disappointing. On an average for the five years ending on April 30, 1865, the tax yielded a There are many reasons little over Rs. 150 lakhs.

The Income Tax Act of 1860, Part XIII. Part IV of the Act.

which go to explain this poor yield. In the first place India is an undeveloped and purely agricultural country compared with England or even the United Secondly, the defects in the law itself (the English income tax machinery was absent), and hence the difficulties of getting true knowledge of incomes, were enormous. Every one liable to the tax was asked to hand in a return of his income, but a large portion understated the income and thus the honest taxpayers paid for the dishonest. 1 For instance, in what were then called the North-Western Provinces, now the United Provinces of Agra and Oudh, out of every hundred returns, about four represented approximate incomes or were acceptable to the authorities, while about 13 failed to make a return. 2 More than one-fifth of the total tax was paid by public officials and the fundholders, this portion being deducted at source, which seems to be the only redeeming feature of the Act. It is also true that the low minimum of Rs. 200 caused a great hardship which the Government remedied by raising the minimum to Rs. 500 in 1862. The rate was also abnormally high for the time and this fact was conceded by the government in 1863, when the general rate was reduced from four to three per cent. Again the assessments were neither revised from year to year, nor even once during the five vear period. Finally the tax was a temporary one, and the Government unwillingly fulfilled its promise by abandoning the tax in 1865, only to return to some other form of direct taxation two years after.

(f) Conclusion. It is admitted that the income tax of 1860 was not operated successfully, especially the idea of building local public works, out of the proceeds of the income tax was an unhappy one, although it was put in the law in order to make the

¹ Fawcett Committee, 1871, Vol. I, Q.9074 et seq.
2 Report on the Income Tax in the N.W. Provinces, 1861-62, p. 45.

Provincial administrations feel that there was something for them in the bargain.

As regards the members of the Government of India at Calcutta, it may be said that they, including Lord Canning, the Governor-General, were unanimous in putting through the income tax at any cost. Sir Charles Trevelyan, the most popular Governor of Madras, officially opposed this imperial impost very vehemently and had to pay the penalty by being recalled for his opposition. 1 Other provincial administrations, on the other hand, seem to have acquiesced calmly.

The Indian opinion and that of the European community, especially at Calcutta directly were opposed to each other. The correspondent of the London Economist, by no means an impartial observer, adds that "the tone of the Bengalee Press is much opposed to the new tax as ever. Bengalees of Calcutta, knowing themselves to quite impotent for resistence, think to make up for that by incessant lamentations. Daily is the wailing and railing against the terrible income tax renewed by the newspapers that are the organs of the Baboos. Their cries for pity when they see the shears which are to be applied to the wool of their fat incomes, are ridiculous enough. This barking, we are told. may, however, be safely despised, as it is sure not to be followed by any bite." Similarly at Madras the Trade Association, presumably composed of both natives and foreigners, resolved to follow their heroic governor in the opposition to the tax. On the other hand we are informed that the non-official community at Bombay presumably Europeans, and the European community at Calcutta, were all in favor of the new taxes. It is interesting to note in this connection that the very European community, which is said to have

The London Economist, Vol. XVIII, 1860, p. 589.
 Ibid., July 28, 1860.

sponsored the income tax of 1860 and waxed eloquent over it, repeatedly brought pressure upon the Government of India, for the repeal of the present tax.

On the whole the British administration deserves credit for this hazardous experiment, which for the first time gave us an index, however imperfect, of Indian wealth of which many an Englishman, by no means excluding Mr. Wilson, had a very exaggerated idea until that time. The administrative experience, on the other hand, should not be lost sight of and we shall see how it was utilised later.

It is also important to note at this stage that even the Bengal landlords, who were enjoying the benefits of the perpetual settlement of land revenue, were made liable to the income tax in addition to their land revenue payments to the Government. Of course this was no breach of faith on the part of the Government since every landholder whose land revenue exceeded Rs. 600, was subject to the tax. In short there was no discrimination against Bengal landlords. 1

2. The License And Certificate Taxes.—Preliminary Considerations.—The Indian financial situation continued to be unsatisfactory. Retrenchments in military expenditure were effected, but they were merely temporary in character. It was also talked about that a license tax may be made a convenient means of maintaining equilibrium in Indian finance.

As a matter of reference it may be added that in 1861 a license duty was appended to the income tax, though it was in force only for seven months. It imposed a duty of one rupee, two rupees and three rupees on all artisans, shop-keepers and wholesale merchants and professional people respectively. But this system of licensing, scrupulously excluded the

¹ See East India Accounts and Papers, 1860, for the whole controversy,

ministers of religion, the ministers of justice, the government officers, and men of the army and navy.1

(a) The License Tax. At any rate the Indian Government, with a view to avoid a vast deficit. levied a license tax in 1867 according to a graduated scale on all professions and trades, ranging from 4 rupees to 25 rupees in such a way that the rate should in no case exceed 2 per cent, the minimum license fee being Rs. 4 on all profits of Rs. 200 and less than Rs. 500 a year, while the maximum license fee was no less than Rs. 500.8 Persons in the public service, though they did not have to take out a license, were subject to the tax.

Military officials not in civil employ, whose pay and allowances did not exceed Rs. 6.000 per annum. and the Government employees with a salary of less than Rs. 1,000 a year were not liable to the tax. Cultivators of land, not keeping shop for the 8 sale of produce, which would be equivalent to practising a trade, the land-lords, and the house-holders, were also exempted.

On the whole this was an improvement over the Income Tax Act of 1860 under which agricultural incomes were assessed. But it was, like most other license taxes, unjust in that it fell mainly on the small traders; moreover those who made higher profits also paid the same rate, that is 2 per cent or even less in the case of those whose profits were more than Rs. 25,000 a year. Add to this the small minimum allowed, and the favoritism shown to the Government employees with a salary of less than Rs. 1,000 a year.

Rs. 4 on profits from trades of Rs. 200 and less than Rs. 500. Rs. 10 on profits from trades of Rs. 500 and less than Rs. 1000. Rs. 20 on profits from trades of Rs. 1000 and less than Rs. 5000. Rs. 100 on profits from trades of Rs. 5000 and less than Rs. 10,000.



¹ Moral and Material Progress of India, 1882-3, p. 176.
2 The deficit for 1866-7 was £2,000,000. It was also in this year that the Indian fiscal year was made to correspond with the British fiscal year.
3 The following scale was adopted:—

The English community in Calcutta and elsewhere began to rail against its provisions and went so far as to say that they did not object to being taxed, but they would like the taxes to be on "proper principles", i.e., be taxed as the people in England were taxed at the time. In short they made a plea for a more equitable form of income tax. From the fiscal point of view, the one which alone concerns us here, the license tax was a failure. It produced less than half of what the income tax produced in its expiring year, although the number of assessees was nearly three times as large. All this pointed towards change and reform.

(b) The so-called Certificate tax.—In the following year, that is in 1868, the license tax repealed and was substituted by what has termed the Certificate Tax, which was much broader and wider in its classification and extent, but was to last only for one year. Everyone liable to the tax had to take out a certificate from the Government. It was divided into ten classes, as contrasted with the six of the license tax, according to annual profits, the taxable minimum being Rs. 500. The tax was a lump sum tax and began with Rs. 8 on Rs. 500 going up by a gradual scale to Rs. 6,400 on Rs. 4.000,000 and upwards.

The exemptions were in fact precisely the same as in the license tax of the preceding year. The rates were two-fifths lower than in the license act and the minimum was also higher than before. Thus it resembled more closely an income tax, but the inequalities, as between classes, were not eradicated. Fiscally it was more disappointing than the preceding tax. It produced less than two-thirds of the license tax, ³ the reduction being mainly due to the raising of ¹ Fawcett Committee, Vol. III, 1873, Lord Lawrence's testimony, p. 328 et seq. ² Ibid., Appendix I.

the minimum from Rs. 200 to Rs. 500. In short the Certificate Tax was only an enlargement of the license tax.

The English community again disapproved of this tax—this time unjustly, because the tax was made to reach more of the larger incomes from profits of trading, on the same principle as in the case of the license tax. All this led to an income tax. Again this time the Home Authorities (i.e., the India Office, in London) took the side of the rich English trading classes, and vehemently declared that they did not think it fair to put a license tax or a certificate tax on certain classes and not on others, who were equally well off. 1

3. The varying Income Tax.—In order to put a quietus on the agitation against the Certificate Tax the Government of India finally decided to go back to the income tax, but unfortunately, instead of making it a permanent source of revenue or fixing it for a term of years, it was to be levied only for one year.

In short the Government reintroduced the income tax in 1869, but this time only at 1 per cent on all incomes of Rs. 500 and upwards, arising from offices, property, professions, and trades, including incomes derived from land by landlords and tenants. The Military Officers were as usual exempted and no tax was imposed in regard to property set aside for religious and charitable purposes. In the middle of the same year, to avoid a serious deficiency in the estimated revenues, Lord Mayo's Government suddenly increased the rate to 1½ per cent. In 1870 a further rise took place, and the tax was now fixed at six pies in the rupee, equivalent to 3½ per cent. In 1871 the rate fell to $1\frac{1}{24}$ per cent, 2 and the minimum was raised from Rs. 500 to Rs. 750, and further raised to

Fawcett Committee Report, Vol. III, p. 329.
 Report on the Income Tax in Bengal for (869-70 and 1871-2, p. 35 et seq. Fawcett Committee.

Rs. 1,000 in 1872. Finally in 1873 there came a second period of total abolition of the income tax.

Before passing any final judgment on the income tax acts enacted between 1869 and 1873, we try to summarise the changes and differences that were to be found in the provisions of these tax laws as contrasted with those of the law of 1860. Under the first income tax every person liable to the tax was required to render a statement of his income; in the more recent laws that provision was omitted, and instead the collector was required to send a statement of the sum to be paid by the tax-payer who was bound to prove in case of an appeal that his income was less than the one stated. This change necessarily increased litigation, extortion, 2 fraud, over assessments, uncertainty and employment of informers, and subordinate officials for assessing purposes. Add to changing rates, and you have the greatest distrust and a vociferous, though just, popular agitation against the income tax.

This was probably the greatest blunder ever committed in the financial annals of the country. It was attacked from all sides. Every year there was a discussion and every year there was a hope of getting rid of it. The authorities did not distinguish between the English and Indian economic and financial conditions. To make the income tax in India serve the same purpose as in England, that is making it a varying tax to suit the ever changing needs, and in peaceful times at that, was untactful.

In regard to the fiscal results, it is true that the tax in 1870 at the rate of 3\frac{3}{8} per cent produced much more money than the tax in 1860-61 at the rate of 4 per cent, the actual amount being over Rs. 200 lakhs.

Vol. I, Qs 2790-1; Vol. II, Qs. 7465,7747-49, 7581-82.
 For cases of extortion, etc., see Report on the Administration of Income Tax in Bengal for 1869-70, pp. 22-28.

This was due partly to the improvement in assessing incomes and partly to the experience gained in the past. More than half of the tax payers were, however, from the income class of Rs. 500-1,000. The total tax payers, on the other hand, were not more than half as many as those in 1860. The charges of collection were also moderate, of which we shall speak at length, when we discuss the present tax.

Now coming to the income tax experience in India thus far, it is fair to conclude that: (1) though the varying income tax proved a failure, the application of the income tax principle to Indian conditions was fairly legitimate; (2) it would work well and give better results if assessed by local authorities with the help of non-official boards or committees; (3) it would be more suited to a people who are united to their government by a strong tie of national interest. As Indians are accorded more voice in the government of their own country, this tax would become more popular than ever; (4) this was the best method of taxing the trading and professional classes along with the highly paid government officials; (5) the minimum of exemption from the income tax should not be fixed below Rs. 500, if not above Rs. 1000, and the 2 to 3 per cent rate would be preferable, at the same time constant tinkering with the rates being fraught with danger; (6) the employment of ill-paid public servants on a large scale to assess and collect a tax of this sort is uneconomical in the long run; (7) the income tax based upon the principle of self-assessment, without the means of verification, is unsuited; and that (8) the tax, as far as possible, should be collected at the source.

¹ Appendix I.

THE ART OF ECONOMIC DEVELOPMENT

(CONTINUED)

PROFESSOR H. STANLEY JEVONS, M.A., B.Sc., F.S.S. UNIVERSITY PROFESSOR OF ECONOMICS, ALLAHABAD

V.—PRINCIPLES OF FINANCE

(CONTINUED)

6. Distribution of Burdens as between Present and Future—Periods of Public Debts.—One of the most important of the principles of public finance is that which deals with the distribution of burdens as between the present and the future. In practice the theory resolves itself into the answers to the questions, firstly, what expenditure may legitimately be met out of public debt and, secondly, what should be the period of repayment of the loan. There is nothing new to be said on this subject; it will suffice for me briefly to explain the principles involved and to indicate those opinions of accepted authorities with which I concur.

It is obvious that when the State undertakes certain expenditure which will provide a continuing benefit

for the people of some locality or the nation at large, for the present time and for a number of years, the burden of paying the cost of such benefit ought to extended over the number of years which the benefit lasts. If an important harbor improvement work, irrigation canal, or trunk line of railway be constructed, it is likely to remain in use, or at least the greater part of it, for seventy or eighty years. It is obvious then that the whole cost of construction should not be paid for by the present generation, but future generations should contribute thereto. This is usually done by constructing public works out of borrowed money and arranging for the repayment of the loan either by instalments extending over the period for which the work is estimated to be likely to remain in service or by creating a sinking fund or reserve which will grow at compound interest to the amount of the loan at the end of the estimated period of its duration. All modern authorities are agreed that the capital expenditure necessary for the works and plant of any reproductive undertaking to be constructed by the State can be financed properly by means of a loan, so long as the loan is repaid during the estimated serviceable life of such works and plant either by instalments or by the accumulation of a sinking fund.

There are three other classes of non-recurring expenditure which according to economic principles may justifiably be met by means of a loan, although in these cases all authorities are not agreed:—

(1) The most easily justified class is that of public works which conduce to the economic welfare of a district by increasing the social income, and are capable of providing an indirect monetary return in the shape of additional taxation, which could easily be collected from the class of persons who benefit therefrom. A good example would be the construction of

roads in an agricultural district, the annual loan charge being met by a special cess upon agricultural land so improved.

- (2) The second class of expenditure is that caused by emergencies which cannot be foreseen or prevented, such as wars and famines, or calamities like earthquakes. The chief justification for throwing the burden to a large extent on the future is that it is beyond the taxable capacity of the people to provide the expenditure immediately out of annual revenue. Furthermore, it may be argued that a war is undertaken for the benefit of posterity, or to avert the continued future injury which would result from defeat.
- (3) The third case is that of providing buildings, parks, or other works of public amenity. These are for the direct use of the community, either in its corporate capacity, e.g., a town hall, or as an aggregate of individuals, e.g., a park, promenade, or free public library. Here the justification of meeting the expenditure from a loan lies in the fact that a building of a permanent character is erected, or work of permanent utility done in laying out the park or promenade; consequently they will be enjoyed by future generations for very many years, and payment for the cost of providing that enjoyment should be spread over its probable mininum period of duration.

In regarding as justifiable the use of loan monies for non-productive works, such as the public amenities above referred to, I differ from Bastable, but am in agreement with Sidgwick and also with the actual practice in English local finance as authorized by the Local Government Board. Bastable states, "What we have called 'economic' outlay has a claim to be met by borrowing that does not hold in respect to other forms . . . Non-economic expenditure is primarily to be met out of income, and unless it can be so dealt with

ought not to be incurred." He has previously defined economic outlay as that made "for the purpose of securing future revenue." He does not explain precisely how the future revenue may be secured; but presumably he does not refer only to reproductive, i.e., commercial undertakings by the state, but would include the raising of additional revenue by taxation where the special expenditure in question had provided the means of paying the extra tax, as in the example of roads given above. Bastable specifically states that buildings existing for public purposes, from the Houses of Parliament down to the smallest town hall are consumers' capital and their cost must be supplied from sources other than loans. Sidgwick states his views very clearly, and, as I think, correctly. He says. "There are two chief cases in which private borrowing is recognized as justifiable: first, where the loan is employed productively, so that the additional profit obtained by the use of it supplies a fund from which the interest may be paid, and a certain proportion of the principal annually repaid; and secondly, where it is employed to meet an exceptional necessity for enlarged consumption, which could not be defrayed without inconvenience or even suffering out of the income of a single year, so that it is good economy to spread it over several years. Each of these cases has its counterpart in public finance." 2 He proceeds to regard as productive outlay, both that which yields a direct revenue by means of a Government undertaking and that which is reaped from the community as an aggregate of individuals by means of increase of taxation. He remarks in regard to the latter class of productive outlay, that it is sometimes very difficult to say how far any particular increase is really

¹ Public Finance, p. 670.

³ The Principles of Political Economy, 3rd. ed., pp. 549 58.

due to the supposed productive outlay and not to other causes of national prosperity. "Borrowing for this latter kind of expenditure, therefore, though often highly advantageous, requires to be very carefully watched." He proceeds further to point out that there are cases where expenditure cannot be made to vield any definite direct or indirect revenue, but may yet increase the total social income, and proceeds as follows: "We have already seen that from a social point of view borrowing may be profitable, by increasing the aggregate produce of the community, even though it does not bring in an adequate return to Government, either in the from of profits on a special business in which the loan is employed, or more indirectly by an increase in the yield of certain taxes. In such a case, however, it is most probable that the increase in the total income of the community will not be equally distributed among the incomes of individual members; hence, unless the interest and repayment of the loan can be provided by imposing a rate on the persons who gain by its employment, fairly proportioned to their respective gains, it has a tendency to cause a new inequality in the distribution of wealth which ought to be considered in adjusting the general burden of taxation." The principle of borrowing to meet "an exceptional necessity for enlarged consumption" really covers the last two cases which I enumerated above, namely, borrowing for an emergency expenditure, such as war, famine, or earthquake, and borrowing for the construction of works of public amenity which are consumers' goods for the public at large. I am of opinion that it is good finance to provide public amenities such as markets, parks, schools, and even town halls, out of loan moneys whenever they are clearly wanted and the municipal income can be expanded sufficiently to bear the loan charge. Borrowing for such purposes corresponds to buying on the hire-purchase system, and is objected to by some writers on the ground that the ease with which money is thus obtained and the burden largely shifted to the future encourages extravagance. This appears to be a one-sided view. Borrowing for public amenities of permanent character should, of course, be cautiously exercised only after such thorough enquiries as will fully demonstrate the public utility or otherwise of the proposed work.

If the plan recommended by Bastable, which has sometimes been adopted in England, and is the usual practice in India, of constructing all public works of a non-reproductive character out of revenue, be adopted, it is obvious that the present generation has to bear the burden of providing utility and enjoyment for future generations. For example, a new school building is constructed substantially and may be expected to remain in use for one purpose or another for seventy or eighty years. Yet the whole cost has been met by the persons paying taxes in the year or two during which it was constructed. It may be urged that, if the expenditure of the whole country on works of a non-reproductive character be averaged, a certain proportion of the public revenue is set aside each year to meet the capital cost of such works which are constructed in a number of different districts each year. Each district has then to wait its turn to get a share of a year's public revenue for the buildings it requires, when it will obtain it free of any burden of debt charges. It may be said that in the end the average result is the same by this method as if each district constructed its own works out of borrowed capital and incurred the debt charges, for each district certainly incurs an annual charge which is part of the cost of the works allotted to other districts.

In reality the difference is exactly similar to that between the old-fashioned building societies, aptly called "dividing" societies, and the modern building societies. In the old dividing societies fifteen or twenty persons would club together and each agree to pay into the society's common fund so much per month-say, if there were twenty members, at the rate of one twentieth of the cost of a house each per annum. Each year they would meet and draw lots as to which of the members should build his house that year. The lucky member would secure a house after paying his first annual instalment; but the most unlucky members would have to wait nineteen or twenty years, and would have paid most of the cost of the house long before getting it. In course of time it was discovered that the collective security of such a society would enable it to borrow funds, sometimes from members, more often from outsiders. Consequently a member who wished to expedite the building of his house before his turn could borrow through the society and pay interest on the cost of the house until he drew the right to a whole year's annual subscriptions. Through this stage the building society has evolved into its modern formmerely an institution for granting mortgage loans to all persons becoming members and purchasing houses. The necessary funds are obtained by taking fixed deposits both from members and from the general public. The great advantage is that every member can secure a house just at the time he wants it and may pay off the loan by instalments in such a period as may suit his income. The same evolution has been taking place in the finance of local authorities in England; and it would be a great step forward in the evolution of Indian public finance to make a similar change. The system of grants-in-aid Digitized by Google by the Government of India to Local Governments, and by the latter to municipalities, should be abolished, and freedom should be given to all Local Governments and local Authorities to contract loans for all public works, whether reproductive or not, a proper control being exercised over the purpose of the expenditure and the period of repayment of the loan.

As already mentioned above, the period for repayment of the loan required to construct any work should coincide with the estimated period for which that work will remain in service. The work should usually not be constructed unless the estimate shows that the net revenue likely to be yielded by it will be sufficient to more than cover the combined annual instalments of repayment of the loan and of interest on the capital outstanding, within the estimated life of the work. The burden which a loan imposes upon the future recurring expenditure consists of both interest and capital repayments, and in estimating the burden to be imposed upon an undertaking or, in the case of non-reproductive works, upon the future taxpayers, both must be taken together. If a loan is repaid by equal annual instalments of the capital sum the interest represents a continually diminishing annual charge. The only plan by which the burden can be equally distributed between the immediate and more distant future is to adopt the annuity method, making the loan repayable by equal annual instalments consisting of interest and capital repaid combined. 1 In this case, since interest plus instalment of capital repaid always amount to the same sum, the interest represents a continually diminishing part of the whole instalment paid to the lender.

¹ The instalments are porhaps more often calculated half-yearly, or sometimes quarterly, or even monthly. Full information as to the necessary calculations for different methods will be found by referring to the following work: The Repayment of Local and other Loans by E. H. Turner (published by the Manchester University Press; 1913).

In so far as a loan is contracted for expenditure on machinery the annuity method may be inapplicable, a higher rate of repayment of capital being necessary in early years to counterbalance the high cost of repairs and risk of commercial obsolescence in later years, as well as the increased cost of new machines needed for replacement. The full solution is obtained by applying the unit cost method, see E. A. Saliers, Principles of Depreciation (Ronald Press Co., N.Y.; 1915), p. 166.

A principle which is not usually taken account of is the secular depreciation of the value of money. National revenue increases at least as fast as the depreciation proceeds; consequently the burden of a given annual charge decreases, and it might argued that the combined annual instalments interest and capital repaid should be arranged so as to increase slightly, say by one per cent per annum. On the other hand the growth of new public wants is so rapid that demands upon the revenue for the service of new loans cannot all be met, and an increasing annual charge for an old loan would be felt as a heavy burden. Consequently the annuity method of equal annual instalments of principal and interest combined is probably the most equitable as between the present and the future.

The period of repayment should in most cases be arranged to coincide with the estimated service and duration, not of the work taken as a whole, but of its component parts such as buildings, machinery, woodwork, etc., treated separately. The practical application of this principle will be elaborated later on in Chapter X.

VI.—OBJECTS OF DEVELOPMENT

1. Development creates new Environment, and results are foreseeable.—Anyone who attempts a comprehensive study of economic development cannot fail sooner or later to be confronted with insistent questions as to the ultimate objects to be aimed at in devising measures of development. The immediate object of economic development is very greatly to change the environment of the population of the district to be developed; and to this change the population is sure to react in certain ways which we can forecast, and also in many ways which we cannot foresee.

We know, for example, that by bringing a railway into a district we usually increase the prices of all agricultural produce and lower the prices of manufactured goods, thereby destroying the village handicrafts, and at the same time causing a huge growth of manufacturing towns and a dead level rural society almost entirely composed of agriculturalists. The cheap manufactured goods are tried in the villages out of curiosity, and gradually many are regularly purchased because they have permanently created new wants. The character of these new wants will depend on the kinds of goods offered in the villages. Have they an educative or a degrading effect? Again we know that if we can increase the means of subsistence, as by distributing improved seed and agricultural implements, the population tends to increase, often rapidly, other things being equal. Also we know that education developes new wants and thus raises the standard of life, and that this acts as a preventive check on the growth of population. There is much that we know too as to the effects of changes of prevailing occupation on the character of a population.

The foregoing examples will be sufficient to prove that at the present day it is possible to devise a program of development with a definite and intelligible human end in view. In the past public works have been undertaken by Governments groping blindly for believed to be likely which were benefit their subjects, or by companies seeking profitable spheres for the investment of capital. What the ultimate effects of the "benefit" or the profiteering considered. Nor is the end would be was never considered even at the present day, except fitfully and sporadically in America and Australia. The world has yet to create and to learn the supreme art of arts—the conscious moulding of populations towards an ideal." "Constructive statesmanship", educational policy, eugenics, are imperfectly developed parts of this art. On its economic side it has been most seriously neglected.1

2. Relations of Economic to other Activities.—It is very necessary always to bear clearly in mind that economic activities are not an end in themselves, but only the means whereby certain of the wants of man are satisfied. A large number of desires can only be satisfied by other experiences or activities. These desires, such as for knowledge, for opportunities of doing good, for the esteem of fellow citizens, for the delights of love and friendship, for the emotion of sexual passion, for the care of children, and so forth, are non-economic, and give rise to non-economic activities, because wealth cannot buy them, or can at least only indirectly assist in obtaining them. Both the economic and non-economic activities

¹ Socialist writers have gone far towards recognizing and gaining acceptance for such an art, but have contributed little of constructive character towards establishing it on a rational basis. The stimulating work of Mr. and Mrs. Sidney Webb in their own books, in the Minority Report of the Poor Law Commission (1910), and in the Fabian Research Committee is, however, of a boldly constructive character. Even more suggestive, because based on a wider human knowledge, are the proposals of Prof. Patrick Geddes for the rehabilitation of cities and for regional development in relation to them, see references in § 5. of this chapter,

are equally essential to life. Economic welfare is a part of welfare in general.1

Probably the soundest as well as the simplest view of the relation of the economic and non-economic activities is given by the theory which traces the recurrence of all activities firstly to their survival value in the evolution of man as a highly specialized animal, and secondly to the subsequent interaction of the intelligence and felicific power 2 which originated and were developed by survival in the struggle for existence. For the preservation of individuals food and shelter are necessary, and in any climate but the tropics clothing also. The provision of these gives rise to economic activities for the supply of what we call necessaries. On the other hand in the preservation of the race, reproduction and mutual combination for protection against enemies are two great factors of survival. The former embraces all activities determined by sex relations and motherhood; the latter altruism and the instinct of co-operation to secure a common end. 8 In so far as activities are directed to these three primary ends-nourishment and preservation of the individual, reproduction of the species, and protection of the race—they may be called functional.

Actions of the first class are either (1) instinctive, (reflex) as avoidance of a blow, or walking, or (2) deliberate, as eating. Actions of the instinctive class are indifferent as regards feeling, but before became fixed as habits were not so—they resulted either from avoidance of anticipated pain or experience of pleasure (of accomplishment, as well as from sensation) in the child's very early experience 4. Actions of

¹ A. C. Pigou, Wealth and Welfare, p. 3.
2 A convenient term introduced by Prof. F. Y. Edgeworth to mean "Capacity to extract pleasure from given material means." See his New and Old Methods of Ethics. Oxford: J. Parker, 1877; p. 71.
3 Thomson and Geddes, Evolution (Home University Library) p. 146.
4 H.B. Marshall maintains that "any content may bring pleasure under proper conditions" (Pain, Pleasure and Aesthetics, p. 245), and he points out that the emotion of fear in mild degree is pleasurable, and is playfully sought (p. 246).

the second and third classes are generally deliberate, but these after being often repeated may become reflex.

We may regard the reaction on the individual's state of feeling as the mechanism whereby activities of all three groups have acquired greatest survival The reaction in the first group of functional is both negative and positive, that is, activities for example, absence of food is painful, and so is a wound, but the taking of food is to the great majority of persons pleasant in varying degree according to the state of the appetite, and the kind of food; and a healthy functioning of all the organs of the body is also pleasant. In the second and third groups nature has used the pleasant reaction more than the unpleasant; yet the crying of a child, the sight of a bleeding wound, and even the thought of a friend's suffering, are unpleasant in the races of men which have proved their power of survival by multiplying till they form nine-tenths of mankind. In a lower stage of evolution, at least among some races of man, there was no combination for mutual protection. When men lived like animals by hunting, every man was against every other, and doubtless the sight of a bleeding wound was pleasant. The domestication of animals and plants and particularly the adoption of settled agriculture, led to the social instinct emerging with a pronounced survival Men to whom the sight of a bleeding wound was pleasant or even indifferent, and who were thus tempted too easily to violence, were doubtless consistently exterminated by joint action of their fellows until the opposite reaction on feeling remained ingrained in a civilized race. There are, however, occasional reversions to primitive type even amongst civilized nations.1

I I am indebted for many of the ideas in this paragraph and the succeeding one to Professor H. Lester Ward in his *Pure Sociology*, (especially Part II, Chapters VI and VII, particularly pp. 126-7, 133-4 and 185-7). though I have not followed him exactly.

The next stage of evolution is of very great interest and importance. In the struggle for existence the early factors of survival were physical adaptation to environment, muscular strength and agility and the pleasantness of the reproductive activities; afterwards sensitiveness of perception, intensity of power of feeling, and intelligence in deliberately deciding actions, became powerful factors of survival amongst individuals, at the same time that the social reactions on feeling became factors of race survival. Having thus had highly developed in him the capacity of intense pleasurable feeling, and intelligence to discover and remember what actions caused the pleasant sensations, man has been led to repeat pleasant sensations beyond their functional value, merely for the sake of the feeling (e.g., eating sweet-meats) and has gradually discovered a whole range of visual, auditory and tactual sensations which for every brief period of experience excite the pleasant state of feeling. Very many of these new kinds or combinations of sensations, but by no means all, result from actions of an economic character, and require the consumption or use of some commodity. The power of perception is capable of education so that the pleasant feeling created by a sensation is increased in intensity and prolonged in time, and sensations previously indifferent or unpleasant become pleasant. Thus arises aesthetic enjoyment. Especially has the perception of visual and auditory sensations proved capable of education, as in appreciation of artistic form and of the musical sequence of sounds. Yet man is still fundamentally dominated in reactions to external stimuli by qualities inherited from the most remote ancestry, so that artistic forms are pleasing not only on account of variety of stimuli, but on account of their approximation to natural

forms (as of trees, clouds, the human figure) and natural colors (green, brown, grey, sky-blue) to which man has for ages become habituated as a favorable environment. 1 The corresponding evolution of the reproductive and social activities to the plane of intelligent utilization for production of pleasant feeling is as yet far less advanced. The disconnected studies of sex relations and motherhood, of civics, and of the allied political and social sciences and arts, are a beginning in this direction.

3. Maximization of Happiness as the Aim of Deliberate Social Action.—The so-called "utilitarian" involves two entirely distinct theses were clearly distinguished by Bentham², but have been confused by many of his critics: (1) that all actions proceed from the deliberate individual's for increase of pleasant feeling. innate desire avoidance or reduction of unpleasant feeling; and (2) that all individual, social and state rules of action should be such as will maximise the balance of pleasant feeling, i.e. happiness, in the community as a whole. The first thesis is a question of fact and belongs to the science of psycho-According to modern psychologists consciousness is at different times in a state of pleasant feeling, or indifference, or unpleasant feeling, the first and last varying frequently and rapidly in intensity, so that feeling may be said to be positive, zero, or negative at any moment.8 Positive feeling tends to accompany the physiological process of anabolism, or building up, and negative feeling (unpleasant) tends

Difficulty Up, and negative lecting (unpleasant) tends

1 H.R. Marshall, ibid., pp.810-8.

2 Introduction to the Principles of Morals and Legislation (ed. of 1823),

Vol. I, Chapter III, p.41. Ĉf. also Sidgwick, Methods of Ethics, 1st ed.,

p.148; the passage was omitted in later editions.

8 The fact that painful and pleasant sensations are "conveyed" from
the sensitive surfaces of the body by different sets of nerves does not show
that the unpleasant and pleasant states of feeling are not the negative and
positive intensities of a single kind or quality of feeling. It is within everybody's
experience that in deciding actions unpleasant feeling is set off against
pleasant feeling and the balance (whichever is greater) determines the action.

to accompany katabolism, or breaking down of bodily The state of feeling at any moment caused by sensations which are either caused peripherally, that is objectively, by some physical contact with one of the five organs of sense, or are aroused centrally by remembrance or imagination. 1 The centrally aroused stimuli are of much less intensity thanthe corresponding peripherally aroused stimuli: but any highly educated or cultured person so constantly experiences pleasure by memories of past events, and by the anticipation of future enjoyments which he imagines, that the greater part of his feeling is centrally aroused. There is a natural tendency to forget the unpleasant side of things and to anticipate pleasant things. The person with the reverse tendency in anticipation is a pessimist.

The recognition of the desire for pleasant feeling and for the avoidance of unpleasant feeling as the motives of all deliberate actions assumes that acts of duty and altruistic actions generally have hedonic effect. In the case of duty the motive is either the avoidance of the anticipated unpleasantness of the law and public disapprobation, or the pleasure of self-esteem which a person feels in doing what he has learnt to regard as his duty. Rules of duty to others have become recognized by public morality. their general object being the maximization of happi-Certain of such rules which originated ness. this object, or for race preservation in a former stage of the evolution of society, are now merely archaic survivals, but from force of habit are still regarded as being necessary restraints. Altruistic actions may be said to arise in different cases from a sense of duty and from sympathy. By sympathy the imagination arouses centrally sensations corresponding with those which In the nomenclature here adopted I have followed Titchener, Outlines of Psychology.

it is supposed the other person is experiencing, and a pleasant or painful state of feeling is thus evoked. If an unpleasant feeling is experienced, then the person thus feeling by sympathy tends to take action to mitigate the supposed state of painful sensations of the other person. It must be within the experience of most charitably disposed persons that occasionally sympathy is aroused by imagining a person to be suffering painfully when such is not at all the case, and an offer of comfort or alleviation is rejected, or the person supposed to be suffering may prove to be a fraud acting cleverly. Yet so intense was the pain caused by imagination in the charitably disposed person that he was impelled to offer help and find out the fact.

So far we have been dealing with momentary states of feeling which become motives of action. may be defined as the pleasant feeling arising from a particular sensation. Happiness and unhappiness, on the other hand, are terms which relate to the resultant or balance of feeling for a certain duration of time, which in the common usage of the word would hardly relate to less than one or two hours. Happiness may thus be defined as the state of feeling existing throughout a period during which many different sensations both peripherally and centrally aroused are experienced, and react upon feeling so that the resultant or balance of the amount of feeling (i.e. intensity multiplied by time) is positive, that is pleasant.1

The second thesis is a normative statement accepted by the utilitarian school as the fundamental criterion

1 Happiness has been defined by Lester Ward in his Pure Sociology thus:

"The greater part of all happiness consists in satisfacing design," (p. 104)

¹ Happinus has been defined by Lester Ward in his Pure Sociology thus:
"The greater part of all happiness consists in satisfying desires" (p. 104);
"Men are always subject to a great number of desires, and if a fair share of them are satisfied at intervals of time there results a general state which is called happiness" (p. 106); "the normal exercise of every organ or faculty is attended with pleasure, and in health the sum total of all these pleasures, moderate and strong, constitutes the state called happiness.

Happiness is subjective while virtue is objective." (p. 131.).

of rules of conduct in the arts of ethics (or morality) and politics, and in all state and social action. have elsewhere maintained that there are three great aims of human, and especially social, activities: (1) preservation of the tribe, city or state, (2) religious emotions, (3) maximization of happiness-and I argued that all three are ultimately directed to the same end of increasing the happiness of the race or of the individual.1 The justification of the utilitarian choice of the greatest happiness of the greatest number as the normative principle appears to be two-fold: (1) that as a matter of fact people actively engaged in affairs and knowing nothing of doctrines or normative principles, always do, as a matter of fact, unconsciously, and sometimes consciously, apply this criterion directly, and more often by implication, in their advocacy of national wealth, national defence, improved health, and so forth; and (2) that no other rationally intelligible aim of policy has been proposed. The only other aim which may be considered rational is the breeding and training of the race to the physical and intellectual efficiency—the attainment of the perfect man capable of the maximum bodily and mental activity. The latter ideal involves the possibility that the more perfect in development and efficiency man becomes the less will be his capacity for enjoyment, and the smaller his chance of happiness, happiness has no necessary connection with perfection of development. When this implication is understood the great majority of persons (except those of an ascetic type of mind) reject perfection of development as the ultimate end of life and action. Asceticism is to be regarded as an inversion of the ordinary relation of sensations and feeling whereby the ascetic obtains maximum pleasure either through self-esteem, 1 The Relation of Economic Science to Social Progress. Indian Journal of Economics, Vol. I, pp. 187-203.

by acting in a manner opposite to the great majority of people, or through an unusual type of emotion—a variation from the norm which has no survival value. I maintain that the ultimate aim of social action cannot possibly be evolved from man's inner consciousness, but must be determined as a question of fact as to what end the great majority of people do actually have in view in making proposals for social improvement. I think many of those who urge perfection of the race in mental, moral, and every sort of development, often unconsciously assume that such perfection will be accompanied by greatest happiness. It is unquestionably true that the attainment of greatest happiness does involve a very much higher standard of physical development and health, and a continual development of allathe mental and moral faculties to far higher standards than we can yet conceive; but the development is not in this case towards a purposeless ideal of perfection, but guided at every stage by a most definite criterion—the question whether, on the balance, the happiness of the people will be increased or not, proper weight being given to future as against present enjoyment. There are others again for whom the ultimate end is the attainment of a higher spiritual life. But on analysis, what is spiritual life but one in which thought and emotion are on that elevated plain wherein they conduce most to the happiness of others and of oneself?

The evolutionist might urge with some show of reason that the aim of social endeavor should be to make all activities, including Government measures, conform with the laws of survival and progress, as ascertained to have operated in bringing the western nations to their present civilization. Thus would further evolution be stimulated and consciously aided.

Happiness would be recognized by the evolutionist as a legitimate aim, though not the sole end, because it has survival value. He would adopt as a more important aim the ideal of perfection of development-physical, intellectual and moral-with a view to maximum efficiency in wealth production social combination for peaceful enjoyment and for war. But then again, we are brought to the question-what is the goal of evolution? Amongst animals, survival value means multiplication of the number of one species at the expense of others, but always tending, according to Professor Lester mass (weight) Ward. to increase the total living matter on the earth (Pure Sociology, page 114). to regard the different were mankind as necessarily bound to come into conflict when the pressure of population on the means subsistence has reached a certain intensity, we should be overlooking the vast possibilities of economic progress and of extension of the preventive check on increase of population. If we were to accept as the natural course of human evolution that the more efficient races should dominate and prey upon the less efficient races, both by governing them and by directing and reaping the fruits of their labor, we should be adopting the Prussian view, which is repugnant to the majority of the civilized peoples. Social consciousness having extended to embrace the whole of mankind in all parts of the world, the goal of evolution is necessarily thereby altered. Growth of numbers is no longer an object, nor does military supremacy for the sake of conquest or wresting economic advantage remain an acceptable aim. When mankind shall have united to guarantee permanent universal peace, the only conceivable end of social regulation and activity will be the maximization of

happiness. Efficiency and perfection of human development will be cultivated with greater assiduity than at present—not as ends in themselves, but subordinated to the aim of happiness.

Probably we are as yet a long way from perpetual peace guaranteed by a League of Nations; and until such an organization has stood the test of more than a century without failing it would scarcely be wise for nations to overlook the possibility of having to defend themselves or at least fight for the League. Consequently for a long period yet efficiency in war must be an aim of social and political policy to be co-ordinated with the aim of directly maximizing happiness.

conclusion to be drawn is that for the present the statesman's aims in his more direct measures of legislation, education, and works, should be the maximization of happiness in conjunction with securing the national defence, and that the development of physical and intellectual efficiency in the people should be pursued in directions leading to both these ends. This analysis leads to a conclusion which is perfectly clear and logical. The direction of policy towards the broad ends just indicated is certainly practicable and the aims such as will be acceptable to the people. Moreover it has the advantage that it is merely continuing evolution in the same direction in which it has hitherto been guided by the principle of survival. We are simply adding consciously the factor of reasonably determined social control, which is itself evolving rapidly from application to disconnected reforms to a grand assumption of responsibility for the whole life of mankind.

4. The Ideal Population.—The broad conclusions as to the ultimate aims of social activities stated in

1 See my Relation of Economic Science to Social Progress, Indian Journal of Economics, Vol. I, p. 201.

the foregoing paragraph, if they are to be of use in legislation and economic development need to be brought into closer relation with the facts concerning the condition of the various peoples of the earth, and the known social and economic forces which are growth. moulding their present to have not only an abstract end in view, but a concrete ideal for each country or part thereof. this reason I shall try to sketch here the main characteristics of the ideal population towards which controlled evolution may carry the people from their present state. My description will apply first of all to western countries, and I shall afterwards discuss whether the ideal for India and China should be in any way different. I shall attempt to indicate the more important differences in the method necessary to reach the goal in these great countries of ancient but stagnant civilization.

The ideal population will be highly advanced in its economic methods, applying capital and labor-saving devices upon a scale not yet realized even in America. Thus it will be wealthy, but the wealth will be more evenly distributed than it is at present in America or Europe. This will be achieved in two wayspartly by the control of population and partly by industrial education combined with state regulation industry. It is impossible to overestimate the importance which will come to be attached to birth control: and, by such aids as science can render, the eugenic ideal will be reached, that no children should be born that cannot properly be provided for either by their parents or the State. This will be achieved by the education of public opinion through Government-aided research and propaganda; and it will be unnecessary to apply compulsion except to a minority of recalcitrants-say, only about one per cent of the

population, and to prevent transmission of congenital diseases, and possibly to prevent immigration and multiplication in the country of races with a lower standard of living.

The social ideal of Robert Owen, which received a new interpretation with moral sanction by Ruskin, and is being elaborated by many thinkers and social innovators to-day as what Professor Geddes has termed the neotechnic order, will have prevailed. Instead of confusion and waste of competition and struggle for existence, society will consciously organize The state, through the central government and local authorities, will take responsibility Education will give the welfare of the inhabitants. children right ideals of life -- a strong character, just moral conceptions, and ambitions, as well as the intellectual-capacity to strive successfully for the chosen end. The state will see that no person able and willing to work goes without the opportunity, work on public amenities, paid at, say, two-thirds of trade rates, being provided for all persons out of employment. The labor exchange system will have undertaken the control and provision of all special technical and trade education. The sanitary conditions of life will have been revolutionized—slums being abolished, all cities town-planned and conforming to the garden city ideal. This will result not only from state action, but from the development of social responsibility of aristocrats and plutocrats. We shall probably always have an aristocracy of intellect and wealth. although the inequalities of wealth will been greatly modified by abolishing unearned or "windfall" profits.

Thus the ideal population will not be numerous, increasing probably less than one per cent per annum, but evenly from the higher and lower classes. It will be

wealthy even by the American standard, largely from the profits and economies of the vast public domaincapital sunk in public works of every kind and in stateowned commercial undertakings in all the great standardized industries. But its wealth will mean far more to it in happiness, for it will have health and leisure, and it will know how to enjoy wealth with highest intensity by the cultivation of art and every form of refined enjoyment. It is a generalization from history that the highest culture has arisen where nature has been exceptionally bounteous in agriculture, or the profits of trade have been concentrated. With the intensive economic development I am portraying wealth can become everywhere so abundant that its enjoyment by a limited population will permit the highest cultivation of the arts and sciences in any region. society will need to make dispositions to secure this result, or at least to see that it is attained without many years of unnecessary delay. A rapid increment of wealth in any country almost invariably arises through the activities of the industrial and trading classes. who must work so strenuously that in general they have no leisure for culture. They have no knowledge of culture and can have therefore no desire for it. This new wealth they can dispose for greater happiness only through sensual pleasures and excitement, and then they become coarse and vulgar. There is a real danger that coarseness and vulgarity may become the dominant note of the population which thus amuses itself without even knowing those forms of enjoyment which give intensest happiness. The greatest failing of public education has been the want of moral instruction; the next greatest failing has been a total absence of culture from the schools.

¹ See H. J. Fleure, Human Geography of Western Europe (Williams and Norgate), pp. 29, 69, 121, 131.



the furnishing of the schools the art craftsman is taboo; the teaching of drawing is mechanical, no artistic sense being inculcated. The ideal population will see that all those who have the opportunity of obtaining wealth will know how to use it to their own and other people's advantage. In manifold ways, therefore, will the people of the future be healthier and happier, and more efficient for every good purpose. But the necessary foundation of all such wonderful progress is limitation of population and greatly increased economic productivity.

This is not the place further to discuss the control of population. My present purpose is to indicate that economic development proceeding from an ordered plan of public works and government measures is the necessary economic basis of progress to a state of higher culture and happiness; and that the development measures themselves should be planned with their cultural effects always in view as well as their directly economic effects. From one point of view economic activities may be regarded as superficial, for they merely provide the material means of subsistence and enjoyment of life, whilst the full culture of the art of life requires much else besides. Yet a truer view sees all the activities of life interwoven with one another, and finds possibilities of cultural elements even in the commonest and humblest acts of daily life. The indigenous civilization of Japan realized this ideal more fully probably than that of any other people in any age, with the possible exception of ancient Greece.

The influence of the beautiful is always towards emotional elevation and spiritual refinement. Artistic beauty is thus a great agent of culture and of progress towards true happiness. The beneficial influence of a beautiful environment, whether natural or artificial,

is indeed so widely appreciated that it is strange that in the execution of public works this condition is either wholly neglected, or sought to be satisfied by meretricious ornament. Perhaps it is due to civic apathy, but I think more to the fact that mechanical ideas have at last completely conquered our school-masters, from highest to humblest, both in Europe and India. May they soon learn what they have lost!

In all constructional works, public and private, artistic expression is possible: differently, of course according to the character and individuality of the work. In main roads it will be largely the choice and disposition of the trees, the design of bridges, culverts, and milestones. In railways the British locomotive engineer has shown what can be achieved in softening the hard lines and angular projections characteristic of "uncivilised" machinery. What might not be done to relieve the tedium of railway journeys by proper attention to artistic merit in station buildings, platforms and signals?

The ideal population, then, would not be content to live within and beside the esthetic horrors of the mechanical-imperialistic age. A hundred years hence scientific economic development will have made the population so wealthy that they will be able to sweep away in disgust such of our hideous erections as still remain. The refining influence of the environment will be given its full weight.

It must not be supposed that this would lead to any dead level of uniformity; rather, the reverse. In the ideal population there would be greater variety, as well as greater tolerance. Uniformity is a fetish of the mechanical-imperialistic age, and is enforced in a thousand ways both by law and convention. One of its most pernicious products is the uniform curricula of schools prescribed by a central Education

Department, which give no incentive to or scope for individual initiative; and another the English urban building bye-laws, which have caused the erection in every growing industrial town of miles upon miles of dreary monotonous streets of small houses for workmen—perfectly straight, perfectly engineered (on the surface), but without a blade of grass or the semblance of a tree, and with no individuality for any house, but its number.

Variety on the other hand is the very breath of life. Variation is an essential part of organic evolution; and freedom to be unusual and act differently from other people, to experiment freely in new and old ways of doing things, is absolutely essential to a healthy and progressive national life. Governments should remember this in the spheres both of legislation and of service.

In the services of Government, whether educational, sanitary, agricultural, or others, it should be comparatively easy to provide for variety. If the need were adequately realized the extra expense involved would be easily overcome. It is perhaps more difficult to get the official type of mind to realize that it should be his duty to allow and assist individual initiative to break away from traditions and regulations, to encourage people to undertake serious and well intentioned efforts in any ways desired, novel or old fashioned, advising as to continuance only according to the ultimate results. It is worth while risking many failures and eccentricities in order to get individual initiative striking out in many different directions. The task of Government should be sympathetically to stimulate, assist, watch and record the results of all methods which people are using, whether well tried or experimental. This principle applies in education, medicine, agriculture, industries, and almost every type of Government service.

Progress to the Ideal.—It is impossible to deal adequately with the many and deep problems involved in securing the progress of mankind towards the happier state pictured in the last section; but it seems necessary to indicate in brief outline the opinions which I have come to hold on this subject; because they cannot but affect the nature of the proposals and recommendations which I make in regard to measures of economic development.

It would seem that in actual fact progress results from two totally distinct causes—one of these being egoistic, though usually just, namely the discontent of an economically dependent proletariat exerting itself by political pressure; and the other altruistic, namely activities of persons who seek to benefit their fellowmen and who either think or plan for them, or teach them and direct the carrying out of reforms. In the present constitution of society both these causes are undoubtedly necessary to secure definite changes of public advantage.

The discontent of a proletariat is usually ascribed to rising cost of living; but whilst this certainly is one frequent cause of industrial unrest, the phenomenon of bitter discontent persisting in spite of increases of wages more than counterbalancing the increased cost of living, shows that the most important cause is to be found in deepseated psychological reactions.

Broadly stated, the primary cause seems to have been the industrial revolution whose effects in two distinct directions have combined to produce a peculiar psychological state—a spiritual starvation of the proletariat. It is against the unnatural conditions of their lives, in an unhuman, unsatisfying environment which they are powerless to change, that they revolt. The gradual economic triumph of the industrial revolution led during the nineteenth century to the permeation

of all thought and action by the ideas of the chemico-physical sciences. Applied through engineering and factory practice in a thousand prodigiously successful ways, these mechanical ideas have come to direct every thought and plan of men of action. There has been no concurrent study of mankindhis wants, his feelings, in their infinite variety characteristic of every organic growth, every natural species. Furthermore, the industrial revolution has had a centralizing tendency through the extraordinary improvement of communications. This has operated in the economic sphere to aggregate capital under the central control of large companies or combinations: and in the sphere of Government it has meant the centralization of control and, to a great extent, of initiative for the whole country in the metropolis.

I have already referred above to the uniformity of our State controlled system of education modelled by a code of such a character that the small degree of freedom left to teachers is of little use to them. they have all been trained according to one model in training colleges, which are also to a great extent designed and run according to standard type. I have also referred to the effects of the building bye-laws in producing miles of straight monotonous streets, well paved and drained, but with no sign of plant life or anything to redeem their harsh ugliness. It is such education and such repressive surroundings of daily life which cause industrial unrest and many deplorable social evils. The individual feels that he is being compelled both to work and live in a distasteful manner according to uniform rules decided for him by forces too strong for him to resist, baffling even the power of united labor. In one country he blames the "capitalistic system", in another the Government, in most countries both more or less. Yet neither

Government, nor "capital" is consciously responsible. They are to some extent class selfish, but on the whole well meaning. The trouble is that their knowledge and their outlook is mechanical—the Government officer believes that there must be one right method for each purpose, and he thinks in statistics. The great employer of labor thinks in output of coal or steel rails: of human nature, its perplexing varieties, and complex needs he is completely ignorant. Yet it is such persons in authority in Government and industry who give permanent concrete form to nearly all the newly created wealth of the country. The most crying need of the times is to have such persons educated to human knowledge on a scale commensurate with their responsibilities: control will be wrested from them by those who suffer. To educate our future governors and capitalists in the requisite knowledge of their fellowmen we must so re-arrange our school and college courses that the human studies of natural history, historical geography, of local arts and crafts, and so forth may be suitably combined with the necessary mechanical studies of the present curriculum, the tedium of which they will relieve by exhibiting numerous applications of their principles.

Altruism, the second great force making for progress, is fundamental in the teaching of Jesus Christ, and may be termed "brotherly love". In sociology it is recognized as an important survival factor for a tribe or race. When fully developed altruism leads to social consciousness and a poignant sense of social responsibility which spurs a man to action on behalf Social reformers his fellow men. of ara actuated; and the problem of creating an altruistic for progress turns upon initiating a motive force * propaganda in favor of service and a sense of responsibility for the happiness of others.

The two great forces tending to promote progress are, therefore, discontent of the proletariat and altruism amongst the intelligent and wealthy classes. The effectiveness of these forces in actually securing better conditions of life will depend upon two factors:

(1) the extent of the understanding and acceptance by the government and people of progressive change as a normal condition of social activity; (2) the extent of knowledge of what changes will be beneficial and how to carry them out so as to secure beneficial results and avoid harmful results, such, for example, as damaging another class of persons, or incurring financial losses.

The first of these conditions of effectiveness could be best secured by a combination of a propaganda amongst adults with definite instruction in secondary schools on social economy, which would be largely devoted to ideas and methods of social progress. The second factor involves not only the diffusion of economic and financial knowledge, but also the extension of geographical teaching in a comprehensive scientific manner, particularly regional and anthropobiological studies—of the relation of town and country, of occupations to the physical character of the terrain, and of the laws of evolution of man qualities of temperament and intellect with the progressive changes of economic selection. There still much investigation to be done in these subjects; but scientific geography and elementary ethnology should be taught in every secondary school. The public may then realise the importance of these studies for the proper direction of measures of economic development and social reform; and may become willing to entrust its future progressive measures to the guidance of experts learned in the human sciences.

When the twin arts of economic development and social progress shall have become definitely recognized and established upon the bases of their respective sciences, then will become clearly revealed what differences of methods, if any, are needed for the advancement of different races. It is easy to adapt economic development to the differences of climate and physical features of various countries. manner the differences in the customary articles of consumption, and of the traditional methods of agriculture and crafts, should be kept steadily in mind. The principles of development and progress would appear to be the same for all races-Indian and Chinese equally with European, but the most advantageous applications may vary widely according to ethnic and historic conditions which need close investigation. Ultimately such investigations, and the consequent recommendations and education of their countrymen, will be most fruitfully made by members of those races themselves, when sufficient numbers are fully trained in the methods of research in the human sciences. This indicates the importance of especially directing higher learning at the Indian and Chinese universities to studies in geography, sociology, and all the human sciences. Research in the physical sciences is already so far advanced in Western countries, and progresses with such increasing momentum, that the most promising field of original investigation in the Orient is the study of mankind as there residing.

(To be continued)

SOME NOTES ON THE PRACTICE OF CO-OPERATION

NANALAL C. MEHTA, I.C.S.

Statistics are apt to be delusive unless read with the limitations inherent in them. Figures have a habit of fostering an atmosphere of pleasant complacency especially when they register the numerical manifestations of a progressive movement. It is often forgotten that numbers as such cannot measure moral values, that they have always to be interpreted in the light of precise understanding of the ideas underlying them.

The annual reports on the progress of the cooperative movement issued by the provincial registrars seem to relate happy tales with only minor tragedies here and there which generally have a moral and an explanation attached to them. The result is not infrequently a facile optimism in the mind of the public, for do not the swelling figures of societies, members, deposits and capital justify the belief that the Indian peasant has now grasped the blessings of co-operation, and that strife is giving way to harmony, slowly but

surely, in the sphere of village economy? The co-operative movement has doubtless made great strides during recent years, but the question is: How far do the statistical returns in the appendices of annual reports indicate the progress of co-operative principles of self-help and enterprise, honesty and mutual trust? In a word, is the moral value of co-operation better realised than before? The answer to that must be sought largely in personal impressions, and I put them down for what they are worth.

The touching stories of enthusiasm for agricultural improvements, enterprise in using purer cultures and better implements, of self-abnegation and generous interest in education, which often adorned the pages of earlier contributions on co-operation, will be found illustrative more of the large-hearted endeavors of conscientious officials and non-official enthusiasts than of elevated morality spontaneously welling out of the rural societies. Primary societies have in fact hardly begun to understand co-operation as anything more than a beneficent institution meant by the Sarkar to make them cheap advances. Unlimited liability is but dimly understood, if at all, by an average society, and is yet hardly felt as an obligation. Every member is concerned to get as much as possible for himself, and so long as he succeeds in his objects, he does not care a bit, unless his jealousy or pique is touched. whether his neighbor has secured an advance commensurate with his resources or requirements, and whether the advance is profitably spent or not. panches fully realise the value of their dignity and help themselves generously out of the money advanced to the society. These high dignitaries do not in practice regard themselves bound as the rank and file, by petty rules such as those of punctual repayment of loans, and utilising them for the objects for which

they were taken. The co-operative movement has doubtless succeeded in making a much larger supply of capital available at cheaper rates of interest for the agriculture of the country than was previously the case. But it must be remembered that the rate at which advances are made by primary societies is by no means very low, and works out at an average of 15 per cent. Notwithstanding the rapid increase in the number of societies, the amount of working capital, etc., the transplantation of co-operative principles has been disappointingly slow. The first co-operative act was passed in 1904. After fourteen years of official nursing the movement has not advanced to the stage of being made over with confidence or any prospect of success to the people themselves. There are yet in fact no signs from within of any spirit of independence. The wind is blowing in the opposite direction altogether—to make the official control more detailed and more exacting with the accompanying demand for special privileges, the object being to guard the society from the dishonesty or surreptitious extravagance of its members. To-day if the official patronage or even the official interest were to be withdrawn, I am not sure whether the co-operative movement too within a few years would not come to be regarded as one of the past glories of ancient India.

The artificial health and constitutional weakness of the co-operative movement appear to lie in the fact that the most important work—the work of organising the primary societies—has to be done for the most part by the low-paid staff of central or district banks or by men provided by the co-operative department. These pioneers themselves have but a faint understanding of the principles underlying the movement and are not always men of unexceptionable character. They regard the work more as 'duty'

rather than an object of social amelioration, or a cause worthy of any special enthusiasm. It is in the preparation of the register of assets—haisiyat registers as they are termed in the United Provinces—in the selection of the first members that the most fateful steps regarding the future of a society are taken. And here the foundations are not laid, emphasis is not put on the moral duties and obligations, but on the exaggerated benefits of cheap and plentiful loans; but the new co-operator soon discovers that even these advances are not so generously forth-coming as he hoped, and then his new creditor seems to be uncomfortably insistent on punctual repayment of loans.

One of the indisputable results ascribed to cooperation with a glow of satisfaction is the diminished rôle of the moneylender in the village economy. But it is no wonder that with the priority of debts, the unlimited pledging of resources and various legal and official favors shown to co-operative bodies the mahajan does not think highly of the credit of members of rural societies. And yet the mahajan remains as indispensable as ever. The needs of the indigent peasant are manifold and inexorable. He wants money for marriage and mourning celebrations, the importance of which looms larger than even the recurring needs of his holding. After all if God be willing, the crops will be all right. There is generally available a sufficient supply of some sort of seed and always the unstinted labor of the cultivator; and these suffice to provide for the irreducible minimum of agriculture in India. And then the reckless joy of wedding and funeral feasts relieves the monotonous tedium of the peasant's existence, and none but the moneylender is prepared to finance him adequately for the purpose. Co-operation aims at

capitalisation of honesty and personal character, and that is feasible only with the fullest liberty granted to primary societies in assessing the haisiyat—the assets-and fixing the loan-requirements of their members. This however presupposes capacity and above all rectitude and impartiality among the co-operators, which again leads back to the foundations. The present tendency is all towards centralisation and concentration of power in the hands of central banks which receive, scrutinise, and adjudicate on applications of individual members for advances. The panches are left powerless and consequently irresponsible, not very unlike the mukhias or the village headmen in the U.P. As a consequence of their position they may get a larger share of the loans than they would otherwise do and as they are expected to be responsible for punctual collections from the rest of the members, they exercise a certain influence which is not always beneficent, for the example that they set themselves is usually not edifying.

The spirit of genuine co-operation cannot take root in a population so poor and ignorant as ours unless more enthusiasm, a livelier sense of social service and a keener perception of agrarian needs is forthcoming in the organisation and control of primary societies than can be expected from official direction. The official agency has done the pioneering work, but is now inadequate for purposes of further educational and propagandist duties. The outside public must be invited to share the burden, though I know how difficult it is to rouse the interest of that body of many hopes and more disappointments. But it must be done if the co-operative movement is to be vivified. And I have no doubt that there is ample spirit of social service and generous interest among our youth which with proper guidance and right counsel can be

directed in helping the march of a national and most beneficent movement. At any rate it is worth while trying to attach co-operative training classes to highschools and colleges and make a serious attempt to enlist the sympathies of the student community. -Bombay has set an admirable example by opening a training class under the leadership of Mr. Deodhar of the Servants of India Society, and inagurating a co-operative institute principally for purposes of study of co-operative problems. Above everything else I would like to see compulsory instruction in the elements and general methods of co-operation for all teachers of primary schools. It should be the duty of District boards to recognize the work of school-teachers in organising new societies and developing old ones by means of small rewards. The central banks may also with advantage pursue a similar policy. Besides, in the present state of literacy it will be specially and mutually profitable to employ the teachers as accountants or secretaries of primary societies. The percentage of societies in a position to undertake the accounting work themselves is still negligible. I not only look forward as a result of the employment of the schoolmaster as a propagandist and a paid servant of a primary society, to a slow infiltration of co-operative principles, but also to the society becoming in time self-dependent. The system of employing a secretary or an itinerant clerk on Rs. 10 or so for a group of three or four societies is obviously unsatisfactory. The unnecessarily large number of registers and the complicated system of accounting in vogue among rural societies make it beyond the knowledge and intelligence of literate cultivators to take over the work themselves. I do not understand how the existing mountain of account registers came into existence and why the question of reducing it to reasonable dimen-

sions has not yet been seriously faced. The problem does not appear to require more than a little diligence and the use of more than average intelligence. a world of illiterates it would not be surprising if the man familiar with their accounts assumed also the management of their concern. It is neither his interest nor his business ever to initiate the members into the mysteries of his métier. Though the secretary is paid by the societies, he rightly regards himself as the servitor of the manager of the central bank who wields the power of retaining or removing him. Being under no responsibility to the societies he comes to regard himself as their master and gives himself unjustified airs-not an uncommon failing of the subordinate staff in India. He has a powerful voice in the distribution of the advances secured from the central bank among the members, and not being dependent on their sweet will has but scant respect for their opinions. I propose that in any case he should be directly paid by the societies—his real masters, and not by the central bank indirectly according to the current practice.

The school-master on the other hand, living in the same village as the members must depend on their good will, and is bound to be more amenable to their control than the itinerant accountant. The members are likely to acquire greater familiarity with their society and its management by constant intercourse with their teacher-accountant who in his turn will appreciate the addition of Rs. 2 to Rs. 5 as a reward for his co-operative labors to his meagre emoluments for pedagogic activities. I now pass on to the direct relations between the central bank and its primary societies. The frequent auditing and supervisions by the central agency is all to the good of village-banks, but care must be taken not to meddle

in details and treat the panches and the members as children and deprive them of their legitimate powers of management. The warning would be superfluous. had not the tendency been towards undue centrali-The management of societies will never be effective and democratic unless the panches are invested with real responsibility, and are made strictly to conform to the rules as to punctual repayment of loans. The personnel of the panches should be periodically changed-retirement by rotation may be followed, and arrangements made for the speedy removal of defaulting panches. It is not usually realised to what extent the panches set the tone of a society, and make or mar its future. The duties of panches faithfully discharged are far from pleasant, and it is necessary that the burden should be shared at regular intervals, and that honest and devoted work recognized suitably at the annual meetings of the central bank. Nobody should be allowed to continue as one of the panches for more than two consecutive terms of office, that is to say, from two to four years according to local conditions and bye-laws. Probably the most general defect in the management of central banks is the mechanical and narrowly rigid adherence to the records of assets or the haisiyat registers in making advances to societies. It is inevitable that the bank must base its decision as to the loanable amount principally on the information supplied by haisiyat registers. But the character and past history of a borrower should also receive consideration, especially at the hands of a co-operative bank. The haisivat registers are notoriously unreliable, and even where that is not the case, they need revisions at short intervals to be kept up-to-date. And this is by no means an easy task, and I do not know of any other means of effectively acomplishing it than by making

the societies themselves responsible for the correct information regarding their assets and liabilities. borrower will not of course exaggerate his liabilities and minimize his belongings. But I do not think it will be beyond the staff of the central bank adequately to check and allow for the element of the unreal in dealing with a society. In any case, if the responsibility of the panches is strictly enforced, I expect it would be possible to get much more reliable haisivat statements than is the case at present. The foremost requisite in all this is the inculcation of sound principles at the very birth of a society. If the villagers are made to realise the meaning of unlimited liability and are not led to entertain extravagant dreams of the benefits of co-operation, they will be found to give more trustworthy information regarding their actual economic conditions. The general complaint at present is that all societies are treated indiscriminately alike by the central banks in the matter of advances, and that the management of the banks are apt to regard it as their duty to distribute the available funds among the societies strictly in proportion to their recorded haisiyat. It is for the directorate and the working committees to see that such an easy-going attitude, fatal to all progress, is not adopted. It is far better to have a few reliable debtors of unexceptionable moral and material solvency than to have many borrowers of doubtful security. Co-operation aims at evaluation of the moral assets of a man, and the test of success lies in the extent to which this principle is translated into actual practice. It is not the business of central banks to adjudicate on the merits of applications of individual members of societies, but only to deal directly with the latter. The panches must be left to judge the credit and the needs of their members. and if they are deprived of this fundamental responsibility of theirs, which is not infrequently the case, there is very little difference in the character of loans from central banks and taqavi advances from the Government, except that in the former the sureties are not entirely cognisant of their liability. If a society fulfils its obligations regularly and honorably, it is but wise that the central bank should try to meet its requirements to the utmost degree possible, and not pursue the good old tactics of the market-place of offering half the amount asked for. It is not business but folly, and has the effect of reducing all the societies to the level of the bad or the indifferent.

India is a land of traditions, and nowhere is the tradition of officialdom more rampant than in this country. The official looms larger than the object for which he exists. Co-operative institutions have to guard against the growth of superfluous multiplication of low-paid subordinates. The applications of societies for advances should always be dealt with directly by the management on their merits, and never the recommendations of secretaries or supervisors. relations between the bank and its clients must always remain warm and intimate, and never lapse into official formality. For this purpose it is better to limit the sphere of influence of a central bank than allow it to extend its operations everywhere within the extended boundaries of a district, even in corners where supervision is difficult or impracticable. Central banks often forget that the loans to be utilized to the best advantage need to be advanced at the proper time; and I think the practice of banks falls in this respect very far short of their professions.

A word about the working of executive committees of central banks. In India it is extremely difficult to persuade the directorate to exercise any influence

on the management. They are usually more ornamental than useful. Still I believe it would be useful if the manager of a bank were to submit at the meetings of the executive committee monthly diaries of outdoor work and brief general reports on the working of the bank shorn of figures that are supplied for the edification of the co-operative department.

A NOTE ON SOME ANOMALIES IN THE CURRENCY OF HONGKONG

W. J. HINTON, M.A. PROFESSOR OF ECONOMICS, UNIVERSITY OF HONGKONG

The currency of China is of great interest to the theorist, for it contains examples of almost every type of money known, and suffers from most of the diseases to which a currency may be subject. Some at least of these diseases appear to be contagious and on that account the currency of the Colony of Hongkong has not shown that regularity which the British reputation for financial sagacity gives us a right to expect. Some of these irregularities are probably disappearing for good, but there is reason to fear that others are more deep-seated in the system, and will persist until radical alterations are made, not only in the currency regulations of Hongkong but also in those of China.

In theory Hongkong has a silver standard. Both the Mexican and the Hongkong dollar are unlimited legal tender. There are fifty cent pieces, and baser tokens of twenty, ten, and five cents; there is also a copper coinage of one cent pieces, and a mixed

mass of Chinese cash for the use of the poorer classes in the petty transactions of the market. The effective currency for all transactions of any magnitude, and even for ordinary purchases of more than a couple of dollars, is the note issue. This is in the hands of three banks, the Hongkong and Shanghai Bank, the Chartered Bank of India, Australia and China, and the Mercantile Bank of India. Of these the Hongkong and Shanghai Bank alone issues notes of the denomination of \$1, and it issues by far the greatest quantity of notes of all denominations. anomalies to which attention is drawn arise in the various markets which deal with this currency. These markets are the money-changer's market, the foreign exchange market, and the tael market. For the second and third of these the foreign exchange market of Shanghai is extremely important.

Scattered throughout the city of Victoria there are a great many Chinese money changers, who have a regular market in which they fix the rates at which all these constituent parts of the currency exchange, and also the rate of exchange with Canton. The following is a list of the prices which they fixed on a certain day in 1916, and it illustrates some of the anomalies to which attention is drawn. This list of prices will repay study.

```
20 cent piece at discount of $88.00 per $1,000 paper
Hongkong:
             10
                                          ,, 82.00 ,,
             50
                                          ,, 85.00 ,,
Hongkong Silver Dollar
                                          ,, 12.00 ,,
                                                         .,
Hongkong & Japan Chopped Dollar
                                          ,, 84.50 ,,
                                                         ,,
Clean Mexican Dollar
                                          ,, 21.00
                                                         "
Old Mexican Dollar
                                          ,, 18.00 ,,
                                                         ,,
Chopped Old Dollar
                                            28.00 ,,
and we may add, for the copper exchange:-
  9 one cent pieces for 1 ten cent piece.
  9 copper cash for 1 cent piece.
Canton: 20 cent piece at discount of
                                         $ 180.00
        10
                                         ,, 160.00
Canton Silver Dollar ,,
                                         ,, 22.00
```

In the first place it will be noticed that the common denominator is the paper money. All agios are reckoned in that basis, because the accounts at the banks, the debts in books, are all, by convention, understood to be payable in Bank notes. It will be seen that the subsidiary coins were at a discount compared with the silver dollar, while the latter was at a discount compared with the note.

At a later time, illustrated by Fig. 2 (p. 879), the dollar was at a premium compared with the note: subsidiary coin, too, once enjoyed a premium over the note and the silver dollar. These are the anomalies of which we have to attempt an explanation.

The second market, that in Foreign Exchange, is formed by the Hongkong bankers for the exchange of gold and silver credits. The brokers who rush from bank to bank quoting offers and demands at varying rates constitute the mechanism by which the market equilibrium is established at a price which "clears the market". Every bank receives telegrams from other silver markets, notably Shanghai, and buys or sells on the information thus obtained. In this way differences in price between Hongkong and other centres are more or less completely arbritraged.

The merchants also form part of this market. They come to the banks to cover the risk of loss on their transaction as a consequence of the vagaries of the exchange. Some want to buy, some to sell gold. Their wants are balanced against each other in the market, together with speculative accounts and the private requirements of the banks acting for their agencies elsewhere. The banks aim to cover the daily aggregate of their buying transactions by sales at as good a rate as possible, but this is not an easy task as the market is very lively at times and there is much outside speculation, mostly harmful. The

prices made in this market are usually quoted in the following form:—

OPENING EXCHANGE Monday, 4th, January, 1915

	8	BELLING			
T/T.	•••	•••	•••	•••	1/9
Demand	•••		•••	•••	$1/9\frac{1}{16}$
80 d/s.	•••	•••	•••	•••	1/91
60 d/s.	•••	•••	•••	•••	1/913
4 m/s.	•••	•••	•••	•••	1/9 1
T/T. Shanghai	•••	•••	•••	•••	78 _
T/T. Singapore	•••	•••	•••	•••	75 1
T/T. Japan	•••	•••	•••	•••	86 3
T/T. India	•••	•••	•••	•••	182
Demand India	•••		•••	•••	1827
		d New York	•••	•••	497
T/T. Java	•••	•••	•••	•••	106 8
T/T. Marks	•••	•••	•••	•••	Nom.
T/T. Francs	•••	•••	•••	•••	2.191
BUYING					
4 m/s. L/C.	•••	•••	•••	•••	$1/9\frac{3}{4}$
4 m/s. D/P.	•••	•••	•••	•••	$1/9\frac{7}{8}$
6 m/s. L/C.	•••	•••	•••	•••	1/101
80 d/s. Sydney and Melbourne			•••	•••	1/10
80 d/s. San Fran	cisco a	nd Newyork	•••	•••	441
4 m/s. Marks	•••	•••	•••	•••	Nom.
4 m/s. Francs	•••	•••	•••	•••	2.80 1
6 m/s Francs	•••	•••	•••	•••	$2.85\frac{1}{2}$
80 d/s. on India	•••	•••	•••	•••	
Bar Silver ready	•••	•••	•••	•••	$22\frac{9}{16}$
" forward	•••	•••	•••	•••	
Bank of England	rates	•••	•••	•••	

The thing which strikes the onlooker who stays in this market all day, is the great influence upon it of the Shanghai market; when the telegrams from Shanghai come in the rate is usually made afresh to suit the Shanghai quotation. Now the rate on Shanghai—the tael rate in the above list—would seem on purely theoretical grounds to be very important, as adjusting Hongkong gold rates to the corresponding Shanghai rates. Theoretically it has a mint parity (\$100=71.5 taels) and it has silver import and export points. Yet the

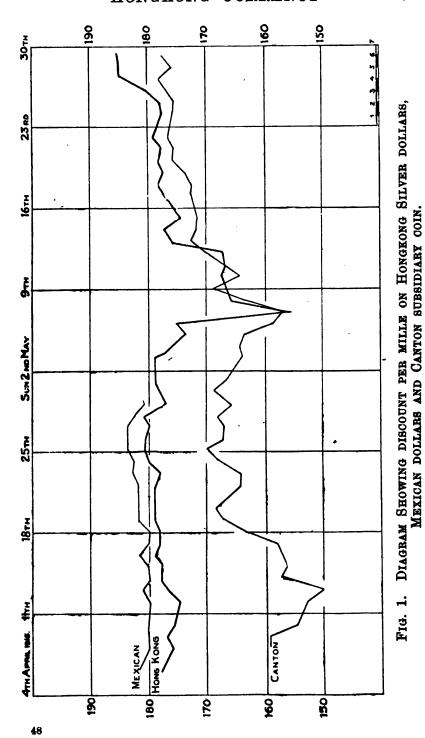
rate is regarded as very uncertain and incalculable by the dealers in this market. The quoted rate is, in fact often nominal, and the explanation is that a considerable but almost unknown market in taels exists among the Chinese bankers, outside the European market. This outside market is only felt at times of exceptional activity in the movement of silver.

We have then the following peculiarities to account for. The subsidiary coins of the Colony after having been at a premium for many years went to a discount about 1906 and remained at a discount until quite recently. They are now at par. The paper money of the Colony, being promises of various banks to pay silver dollars, has been at one time worth less and at other times worth more than its face value. Both Fig. 1 and Fig. 2 show this discount on the silver dollar, or premium on the note.

The matter of the subsidiary coin is comparatively simple, and will be cleared out of the way first.

The subsidiary coin was at a discount at the time when this table was published, because too much of it had been made: yet when the process of making was at its height the coin was at par, or even at a premium, and disappeared as fast as it was put into circulation. The requirements of the Colony in subsidiary coin have been estimated at \$2,000,000, but the table on the following page shows the amounts put into circulation, prior to 1906, when the discount first showed signs of becoming permanent and heavy.

An enquiry was then set on foot and a Subsidiary Coin Committee was appointed in 1907, which reported that the depreciation was due to a large over issue of Hongkong subsidiary coinage, and also to the excessive circulation in the Colony of subsidiary coins struck at the Canton mint.



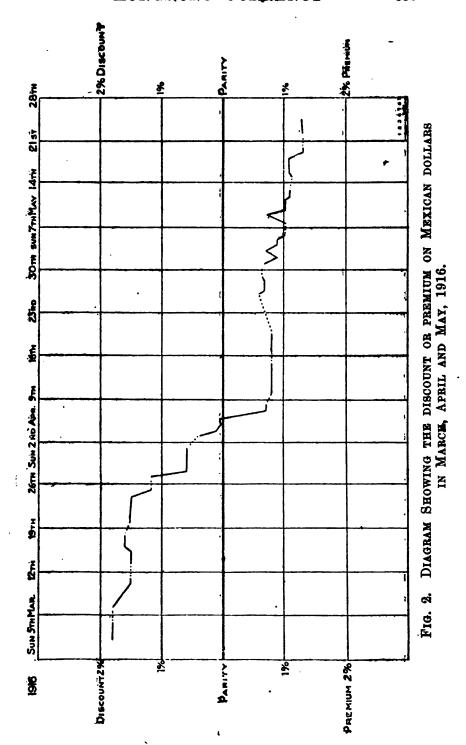
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In fact, the Hongkong Government had been supplying the neighboring Chinese province of Kwangtung with subsidiary coin, and spending the handsome seigniorage as current revenue, until the Provincial Government, realising the profits to be made, began

CIRCULATION AND PROFITS OF SUBSIDIARY COIN

Year	Approximate amount of H. K. Silver and copper subsidiary coins put into circula- tion up to Dec. 31st.	Withdrawn	Profit	Loss	
To.	\$	\$	\$. \$	
1894	11,918,125.00	•••	811,845.55		
1895	18,750,125.00	•••	152,600.88		
1896	15,985,125.00	***	110,196.20		
1897	18,485,125.00	•••	115,015.91		
1898	21,778,125.00	•••	148,044.49		
1899	26,888,125.00	•••	168,558.25		
1900	29,985,125.00	•••	191,588.40		
1901	88,271,125.00	•••	188,515.90		
1902	86,498,125.00	•••	126,586.87		
1 9 08	89,788,125.00	•••	76,440.18		
1904	42,518,245.00	•••	100,572.08	•••	
1905	48,604,205.00	•••	41,880.00		
1906	48,999,880.00	8,468,000.00		887,987.85	
1907		Nil	•••	Nil	
19 08		810,090.00		164,674.72	
190 9	•••	8 20,2 59.04		76,863.17	
1010		429,100.00		166,282.67	
Total	48,999,880.00 5,527,459.04	5,527,459.04	2,226,284.66 795,757.91	795,757.91	
Balance	88,472,870.96		1,480,476.75		

to coin its own dollars and subsidiary coin. The Canton mint was set up in 1888, but soon discontinued the minting of dragon dollars, turning itself to the more profitable and congenial task of minting subsidiary coin. Of all this subsidiary coin the most popular are the twenty cent pieces, which have now become the commonest currency of Canton. That minting went on, until in 1916 the twenty cent pieces were discounted almost to their rather uncertain



bullion value, and were even shipped to Shanghai as silver bullion when the price of silver rose in the summer of that year.

state of affairs in To return to the attempts were made to induce the Canton mint not to coin any more subsidiary coin, but these attempts were attended with very little success. The two subsidiary coinages continued to mix and to be used in both the Colony and the Province, and they continued to depreciate, the predominant influence being the amount of the issues by the Canton Mint. A somewhat half-hearted attempt to redeem all subsidiary coin which happened to be paid into the Colonial Treasury did not have any great effect upon the discount, and the subsidiary coin poured into the Colony from the Province fast enough to raise the rate again. It was felt that the time had come for more determined action. Accordingly the local transport companies refused to accept any but the Hongkong subsidiary coin in payment. In doing this they were certainly within their rights, and they were thought to have the support of the Government. The consequences, however, were very curious, for the Chinese boycotted the trams. Free rides were given by the enterprising company in order to break the spell, and these rides were greatly appreciated. especially by the younger members of the community. but when any question of payment arose the boycott was as determined as ever. Finally, the Government stepped in, and secured powers by an Ordinance to divide the city into districts, imposing additional taxation upon the district which harbored the boy-At the most interesting stage of the cotters. struggle, when unwillingness to ride in promised to become very expensive the oneself and one's neighbors, the boycott broke down.

shortly afterwards, in June and July, 1918, the Legislature passed an Ordinance forbidding the use of notes and subsidiary coins other than those This Ordinance came into effect of the Colony. without difficulty, but did not remove the discount as some over-sanguine persons had hoped. Naturally it displaced the Canton subsidiary coin by a certain amount of Hongkong subsidiary coin drawn from Canton. Since then the Treasury has redeemed as much as current revenue would allow, with the result that the subsidiary coin is now almost at par. It is probably too much to hope that the subsidiary coins will always be exactly at par, for the Chinese have an inveterate habit of exchanging currencies, and there is a money-changer's market in all coins. scarcities of small coin may occur from time to time.

The fluctuations in the discount on the silver dollar are not so easily accounted for. We may refer to the two diagrams on preceding pages. Fig. 1 (p. 377) is the first of a series of diagrams we have made showing the variations in the discount on the Hongkong or Mexican dollars, and in the Cauton subsidiary coin, the effective currency of that city. Of the latter it is not intended to speak at present, though it does vary in a most interesting way, and has some bearing upon our own currency. The discount on the Hongkong dollar is represented by the thick black line; discount on old Mexican dollars, which moves in close sympathy with the discount on the Hongkong dollar, is shown for the first month only. The second diagram (Fig. 2) refers to the months of March, April and May, one year later. It shows the number of Mexican dollars obtainable for one hundred dollars in notes, and the most interesting thing about it is the fact that the notes went to a discount in April after having been at a premium for a year.

The inconveniences of this variation one obvin When the paper was at a premium people who received silver dollars wished to deposit them at the bank, and then draw the amount of the credit thus created in the more highly valued notes. A visit to the money-changers for the equivalent in Mexican dollars and so back to the Bank again completed the circle of an easy road to wealth. Naturally the bank began to keep separate accounts for dollars and notes. The shops also put up notices refusing to accept payment of more than a few dollars in silver, the legal tender of the colony. Workmen demanded to be paid in notes. A promise to pay a dollar was worth more than the dollar which it was promised to pay. Now during the year March 1915 to March 1916 the T.T. rate, which is the price sterling of Hongkong Bank Notes, or credits notes, was above silver parity. In March 1916 it fell below silver parity, as the price of silver mounted higher and higher, and a little later. when disparity was fluctuating about 8 per cent, the premium on the note disappeared, to give At the same time silver was exported. to a discount. though we cannot show the amount as no official statistics of imports and exports were then A comparison of Fig. 8 with Fig. 2 will show this close correspondence.

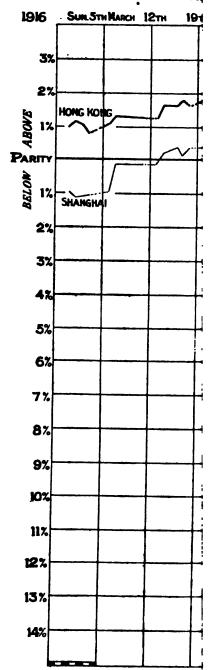
The Mexican dollar continued to command a premium until its exportation was forbidden on December 8th 1916. Upon the enforcement of this regulation the discount disappeared and since then the currency has been practically normal, each part exchanging at par, or as near to it as those inveterate money-changers, the Chinese can bear to see it.

¹ The export of British Dollars only was prohibited on May 5th. Mexican dollars at once commanded a premium over British dollars and were exported. In August 1917 the export of silver bullion was also forbidden.



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DIAGRAM SHOWING PERCENTAL



i

The ratio between dollars and notes seems therefore to vary with the disparity between the rate of exchange and the value of the dollar as silver, provided that silver can be freely exported. The margin by which the rate can lag behind silver parity will depend upon the cost of collecting silver and sending it to the most profitable market. But there is little bar silver in Hongkong, and therefore this arbitrage operation has to be carried out in Mexican or Hongkong dollars, or in fen, Cantonese subsidiary coin, or anything else of that kind. The best, though not the only market for Mexican dollars is at Shanghai, and this makes it important to compare the position of silver in Hongkong and Shanghai. Now the disparity of the sterling rates was often greater in Hongkong than in Shanghai even when silver was allowed to pass freely in and out of the colony; hence wide variations in the tael rate. At any given time, at a given price the silver-sterling with silver exchanges fluctuate about a silver parity. They fluctuate within limits fixed by the cost of sending silver bullion to the centres when it can be marketed for gold. Now it may happen that when the price of silver advances the exchange is already high, and pressing, as it were, against the silver specie point. In that case trade conditions will allow of a rise of the rate which may keep pace with the rise of price of silver-if the latter does not go very fast. But if the condition of trade naturally established a rate pressing against the other specie point, i.e., a low rate, then the rise in silver would be followed reluctantly as it were, and a considerable lag might result. which would be the greater, the more rapid and extensive the rise of silver. In fact when silver rises very rapidly the genuine trader generally steps back out of the market and only inter-bank and

more speculative business is carried on. It is clear that the trade conditions will not be the same in all ports, and it is also a fact that the Shanghai market is far more speculative and perhaps more freely competitive than the Hongkong market. It is not surprising, therefore, to find that in the summer of 1916 when the price of silver made a spectacular advance, the rates in Shanghai and Hongkong lagged behind by a percentage which increased as the price of silver rose, and was greater for Hongkong than for Shanghai. In Fig. 3 this disparity is shown by the distance above or below the line marked "parity". The black line representing the Hongkong disparity rises higher and falls lower than that representing the Shanghai disparity. In other words the Shanghai rate more nearly follows the price of silver than does the Hongkong rate.

It would appear, therefore, that the premium on dollars 1 occurred (see Fig. 2) when the Hongkong and Shanghai sterling rates of exchange were more than 3 per cent below silver parity, the Shanghai rate being below parity or only slightly above it when the Hongkong rate was above parity. When the Hongkong rate was more than 3 per cent below parity, generally by a considerable percentage more than the Shanghai rate, the notes went to a discount. The most probable explanation of this is that silver is exported when the rate is more than 3 per cent below parity and imported when it is above. This silver is obtained by the Chinese who deal in this business, not by presenting notes to the Hongkong and Shanghai Bank for encashment, but by exchanging notes for silver in the money-changer's market, or by bringing down silver from Canton in exchange for notes. That silver will ordinarily be dollars and it is limited in amount

¹ Which is the same as a discount on notes.

and not easy to collect. The consequence is that it goes to a premium in this market, that is to say the notes go to a discount. On the other hand when the Hongkong rate is above parity the dollars will tend to flow back into Hongkong and the notes will go to a premium in the same market.

In practice one speaks of a premium on the silver dollar, not a discount on the notes, and vice versa, for all transactions are reckoned in notes in spite of the fact that the dollar is legal tender.

This movement of silver out of the colony should be reflected in the tael rate, the ratio of exchange between the currency of Hongkong and that Shanghai. This is an exchange between two silver currencies, nominally at least, though we have seen that Hongkong really has a paper currency. tael, of course, is really a money of account, for it is the Shanghai weight tael with an allowance for fineness and a "convention" which counts 98 of these as full payment for a debt of 100. It is as though one should reckon the English currency in ounces of gold of say twenty-three carats, every ninetyeight of such ounces to be considered as one hundred; and in the meantime the currency to consist in practice of sovereigns, notes, and tokens as before. in Shanghai the currency is dollars and subsidiary coins, but accounts are kept in dollars and taels and big transactions carried out in taels.

Theoretically, then, the rate of exchange for Hong-kong dollars into taels cannot vary by more than the cost of moving silver from Hongkong to Shanghai and vice versa. The mint par, if one can speak of a mint par where one of the currencies is so abstract, is practically \$100=Ts.71.5. In practice, however, there is no mint price at which dollars can always be made into taels or vice versa, but a

market price, which fluctuates considerably and not very regularly within the limits fixed by the cost of melting dollars into sycee in Shanghai and of coining dollars at Bombay. Nevertheless there is at any moment a par for dollars, and one would expect specie points beyond which the rate cannot go. a matter of fact those specie points are not effective because of the small amount of silver available in Hongkong for the arbitrage and the lack of a mint at Shanghai and Hongkong. The Chinese mint does not affect the question. Movement of specie therefore takes place but it only checks the movement of the tael rate, it does not absolutely stop it. The last diagram Fig. 4 opposite shows the movement of the tael rate. It falls below parity on the fifth of April. On the same day Mexican dollars reached par (Fig. 2) and two days later went to a premium. price of taels in Mexican dollars in Shanghai, which is not shown on this diagram rose to its highest point on April 4th, and thereafter fell away to the end of This is consistent the period under consideration. with the movement of dollars from Honkong to Shanghai, which would be called for by the tael exchange moving so unfavorably for Hongkong.

The conclusion that the unfortunate variations in the ratio of exchange of the silver and paper dollars was at least partly due to the use of dollars to arbitrate differences between the sterling rates at Hongkong and other silver centres, especially Shanghai, is confirmed by the effect of the prohibition of the export of silver in 1916 and 1917. The prohibition at first extended only to the Hongkong dollar, but as the Mexican dollar at once went to a premium it had also to be included. The consequence is that the notes and silver now exchange practically at par, but the sterling rate departs from parity

even more easily than before the prohibition, and it avoids the violent fluctuations which once characterized it. In fact we have something intermediate between a gold and silver standard; the rate is fixed by the trade requirements, including speculation, and as there is no possibility of arbitrage in metal, the rate must be very much more under the control of the big financial houses than was formerly the case. Export of silver can still take place under licence, but I do not know what guides the Government in granting or refusing licences.

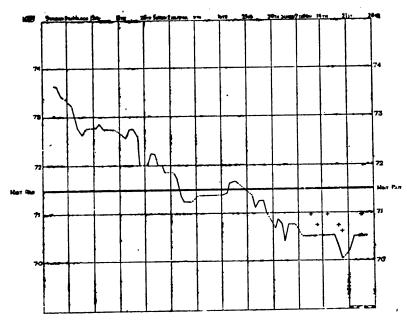


Fig. 4. Diagrams Showing Variaton from "Mint Par" of the Tabl Rate on Shanghai in Hongkong.

It will be interesting to see whether this experiment will modify the opposition which has existed in some quarters to the idea of a gold standard for Hongkong. Hitherto it has been urged that to establish such a standard for the colony while it has a hinterland with a different system of currency would be to lose for it the financial leadership of South

China. The notes of the Hongkong and Shanghai Bank have already gone to a discount in Canton, and this may confirm the opinion of the pessimists. However that may be, the currency is now practically the creation of the Hongkong and Shanghai Bank which is our unofficial Master of the Mint.

THE PRICE OF LAND IN THE PUNJAB

H. CALVERT, B.Sc., I.C.S.

REGISTRAR OF CO-OPERATIVE SOCIETIES, PUNJAB

One of the most conspicuous features in the economic history of the Punjab has been the rapid and continuous rise in the price paid for agricultural land. Under the Sikh regime, when "the cultivator ploughed with a sword by his side and the Collector came for the revenue at the head of a regiment," land. except in the immediate neighborhood of big towns was practically unsaleable. Prior to the mutiny. transfers were almost unknown and in some parts of the province sales do not appear to have occurred before 1868. The Province, it will be remembered, was annexed in 1849. It was looked upon as a country of deserts and barren wastes and its addition to the empire was regarded as merely another burden upon the already depleted finances of the Government With the introduction, however, of settled law and order, fixed moderate assessments, and security of right and tenure, the Punjab embarked upon a remarkable career of prosperity which has continued, practically without interruption, down to the present day and to which, with improved communications, expanding irrigation and rising prices for its agricultural produce, no end is at present visible.

shortly after the mutiny that sales of land began to attract notice and by 1872 the increasing volume began to cause disquiet to Government. Punjab is essentially a province of proprietors. The typical owner possesses some eight acres and probably cultivates four acres more as a The agricultural tribes are generally distinct, easily defined bodies, possessing valuable martial qualities which endow them with considerable political importance. secure their To contentment prosperity has for nearly seventy years been the main object of the administration. Their expropriation by tribes of non-cultivating capitalists would obviously have proved a grave source of embarrassment and the annual Land Administration Reports testify to the with which the Punjab Government solicitous care watched the rapid increase in sales of land by the ancient owners to money-lenders and shopkeepers. The prolonged official anxiety finally led to the passing of the Land Alienation Act in 1901. Throughout this period, however, the continued rise in the price of land has been regarded as a matter for pride and congratulation and no doubts seem to have arisen as to whether this process has not continued past the limits at which it could be viewed with complacency. It is this question which forms the subject of this Undoubtedly the efforts of the British Administration to confer on the agriculturists all the requisites of a prosperous peasantry was the initial cause of the rise in price. Reduction of the revenue assessment, preparation of an accurate record rights and the legal protection accorded to these

rights gave land a market value. In 1869-70 the average price paid for over a hundred thousand acres was ten rupees per acre, equivalent to 18 times the annual land revenue. By 1875-6, it had risen to Rs. 20 per acre or 31 times the land revenue. This rise was probably connected with the heavy export of grain to famine stricken Madras. In the next few years the province experienced short rainfall, and bad crops, the area sold increased and the price fell to Rs. 17 an acre. The effect of the reduction of assessments was to bring the price in 1882 to what was then regarded as the "unprecedented multiple" of 36 times the land revenue.

Other factors which at this time exerted a marked influence on land prices were railways and canals. The first railway in the province was commenced in 1858 and was opened for traffic in 1862. The line from Lahore, the capital, to Multan, which then had a connection by steamer with Karachi, was opened is 1865 and the province was linked up with Bombay and Calcutta in 1883, by which time there were about 1,100 miles open for traffic.

Inundation canals existed before the annexation and were rapidly extended afterwards. Big irrigation schemes were rapidly put in hand. The Bari Doab Canal was opened in 1859 and the Sirhind Canal in 1870. The vigorous extension of canals and construction of railways created a great demand for labor which was further intensified by the Afghan war of 1879-80. Prices rose considerably and in spite of the severe famine of 1868-9 and the scarcity of 1877-78, the cultivating classes increased in prosperity. The railway enabled large amounts of grain to be exported to Bengal in 1873 and to Madras in 1876 on the occasions of famine conditions in those two Presidencies, and shortly afterwards the European

market was brought into touch with the province. The result was a rapid increase in the number and value of transactions in land. The gross sum paid for land was 10 lakhs in 1869-70; five years later it had risen to 15 lakhs, and 1879-80 it was 30 lakhs That these sales were due to surplus of rupees. money seeking investment rather than to straitened economic conditions is indicated by the fact that they were most frequent in the most prosperous districts. The money-lending buyer (bania) was, at this time, not always allowed to take possession of his purchase in peace, but as the power of the courts increased his policy of steady aggrandisement at the expense of the old landowning class was made more safe and more profitable. About 1876-7, the tendency for agriculturists to embark on money-lending attracted notice. half the land sold was transferred to members of agricultural tribes and the eager readiness with which the farming class bought up plots in their immediate neighborhood undoubtedly contributed upward movement of prices.

In the quinquennium ending in 1877-8 the average area annually sold was 93,000 acres, in the quinquennium ending with 1882-3 it was 160,000 acres; in the next it was 310,000 acres and in the following one ending in 1892-3 it was 338,000 acres.

In spite of this remarkable increase in the area sold (which includes mortgages converted into sales) there was a still more remarkable rise in the price paid. In the early days land in Sirsa sold for six annas an acre; about 1869 the average for the province was ten rupees. Thereafter the upward movement may be illustrated by the following figures:—

1875-76	Average	price	per acre	Rs. 20,	or	81 × 1	and	Leaeu ne
1880-81	"	,,	"	Rs. 18,	or	82×	"	"
1885-86	"	,,	"	Rs. 16,	or	86×	,,	"
1890-91	,,	,,	"	Bs. 80,	or	50 ×	"	"

.The official figures now give the average rate per cultivated acre as follows:—

	$oldsymbol{R} oldsymbol{s}.$				
1885-86	80				
1890-91	61				
1895-96	59	or	56×	land	revenue
1900-01	77	or	8 9 ×	,,	"
1905-06	85	or	105×	,,)
1910-11	124	or	127×	,,	"
1916-17	227	or	157×	,,	"

In the 21 years from 1896-7 to 1916-17 about 967,000 plots of land, totalling some three million acres of cultivated land (nearly 10 per cent of the whole), have been sold for thirty-three crores of rupees.

Looking at the figures, it may be said that from 1868 to 1891 the rise in price was not more rapid than might be expected to result from lenient assessments, improved communications, wider markets and other accompaniments of settled government. The continuance of the rise is more difficult to explain. It is not due to increasing density of population, for this in 1881 amounted to 514 of the total population per square mile of cultivated area, and in 1911 it had fallen to 499.

It is not due to better cultural methods or to improvements in the soil. The number of agriculturists per hundred cultivated acres has declined from 46 in 1868 to 48 in 1911, and it is believed that there has been a similar decrease in bullock power. The question of improvement due to manuring, or the introduction of clovers or root crops does not arise. The average intensity of cultivation has probably declined.

In part the upward movement is due to the increase of irrigation from canals, wells etc. from nearly six million acres in 1868, to over twelve million acres in 1917. The cost of the well is usually included in the price of the land. It is important to observe, however,

that the general rise in price is also marked in districts without canal irrigation and in tracts without wells.

In part the increase may be due to the price of agricultural products, but the influence of this factor is difficult to estimate. In 1869 wheat was selling at 13 seers per rupee; it fell steadily from 1871 (20 seers) to 1877 (27 seers) and then rose sharply to 13½ seers The continuous steady high price in recent in 1879. years due to better communications with good markets may account for part of the increased value of land to exporting districts, but it cannot have had much effect in districts which consume their own produce. The expenses of cultivation have risen considerably. Bullocks were Rs. 35 each in 1870, now the average price cannot be less than Rs. 80 and other have similarly gone up in price. It must always be remembered that any increase in cost of production affects the whole produce, while a rise in the price of the produce only affects the portion sold. marked leniency in assessment of the government demand has enabled the cultivator to keep more of the surplus assets for himself. In 1868-9 the demand averaged Re. 1-1-3 per cultivated acre, at present it is Re. 1-8-6, nearly the whole of the rise being due to the extension of irrigation. The increase in the government demand on the same class of soil is actually less than the increase in prices of produce so that the real burden has been lightened.1 The rapid expansion of cultivation in the central and western States of America caused land prices to fall all over Europe; and even in America itself as recently as from 1880 to 1900 there was an annual decrease in

¹ Note. It seems doubtful, however, whether the influence of the leniency of the land revenue demand is not sometimes overestimated. In the last annual report, the demand is given as Re.1-8-0 per acre, the price over 150 times this and the average produce as Rs.25. If the rent is half the produce or Rs.12.8; then the return is 4.9 per cent: total remission of the demand could increase this to 5.5 per cent and doubling it would reduce it to 4.3. Such small differences can hardly account for present high prices.

the value of farm property in New York State, and a similar shrinkage of land values is shown by Ohio. Even now it appears that the average price of general farm land in New York is somewhere about Rs. 132 per acre as compared with Rs. 227 in the Punjab. The expansion of cultivation due to the colonising of large newly irrigated tracts in this province has not resulted in any corresponding decline in the average price in the older districts. rise is not due to immigration from outside the Province nor does it appear to be due to any realisation that the land will in future yield a bigger income with more skillful treatment. In the Lower Bari Doab Colony an increase in the price realised at Government auctions from Rs. 229 per acre in 1917 to Rs. 331 in 1918 was probably due to the discovery that the land was suitable for American cotton. but this appears to be exceptional.

The continuance of the rise appears now to be the result of local conditions. In the first place the owners are hereditary agriculturists attached to the soil and the village from generations back. There is practically no open market for the land; that is to say a man selling his ancestral acres in his own village could not be certain of finding other land available for purchase in another village. There is hardly any such thing as "land for sale". To the influence of the hereditary connection is added the effect of the progressive subdivision of holdings; the ancestral property is too small for economic working and can only be added to by snapping up little plots in the immediate neighborhood. These opportunities, however, are very rare. There are roughly 2½ million families supported by agriculture in 33,400 villages. In 21 years, as mentioned above, the number of recorded transactions was 962,000, or about 46,000 a year, or 29 per village in 21 years. Thus each family has only one chance of buying a plot in 54 years; or if we assume that vendors and vendees are equal in numbers, then the chance comes on the average once in 27 years. It is this scarcity value which accounts for the rise in such remote tracts as In this Himalayan tract the average price Kuln. for the period 1871-1891 was Rs. 27 per acre; from 1891 to 1912 it was Rs. 85 per acre. The writer of the Gazetteer remarks that the price of the land bears no relation to the profit to be made out of it. Across the Central Himalayan chain the price is Rs. 157 in Lahul and Rs. 133 in Spiti. These are almost entirely due to the intense scarcity of land suitable for cultivation and the scattered nature of habitations adds a high site value to the land. is no good to a man with money in one village to know that land is for sale two villages off.

It is becoming increasingly clear that the factors referred to have raised the price well above the economic limit. The latest Report on the Court of Wards in the Punjab deals with a cultivated area of over 200,000 acres; the estimated value is only The gross income accruing from Rs. 94 per acre. this large area works out at under 7 per cent of the value; after paying land revenue, the rate is reduced to 5 per cent, and when the cost of management and ordinary repairs is deducted, the resulting profit is 41 per cent. If the land were valued at 157 times the land revenue (the multiple for 1916-17) the net profit would be only 3 per cent. difficult to form an accurate estimate of the profits of farming anywhere at any time, and in the Punjab, there is nothing very reliable of this nature on record. The figures quoted have the merit of being actual accounts relating to a large area scattered over the

province and illustrate the point that the present price is higher than would be justifiable in the case of a man buying land solely for the value of the yield he was expecting to extract from it. general prosperity of the province already referred to, coupled with a large income from service in the army, etc., and an appreciable sum from the earnings of emigrants to Australia, America and other places, have brought into the possession of the people large sums of money for which they can think of no investment except the land and jewels. In former times the latter was a popular form of keeping surplus money, but there is always a loss on realisation. In the case of land, the rise in price is a prime factor in the continued rise of price; that is, the common experience is that an investment in land will yield a profit on realisation. If the land is not, at the time of purchase, quite worth the price demanded, it will probably become so in a few years. There is thus a tendency to forestall the increase in Another factor is the wealth accruing professional men for which they are unable to find a safe and suitable investment. Industries are unimportant and joint stock enterprise is moribund. In 1868 there were 40 pleaders in an area which now finds work for about 1300, and these and other professional men evince a natural desire to become owners of property which will not decline in value. cases the direct return is of minor importance.

It will be seen from what has been said above that the continued rise in prices, so far from being a subject of congratulation, is really a matter for serious concern. Speculation in land has seldom proved of much help to agriculture whereas it has frequently, as in Ireland and the United States, caused considerable harm. As has been pointed out,

a great factor in causing the rise is the rise itself. If land were to decline in value, it would rapidly fall out of favor as a source of investment, and the capital thus set free would be available for development in other directions. It is an obvious evil that the new capital is invested in the land and not in improvements to the land. Of the several companies owning railways in the province, none has attracted much of its capital from within it, yet the official report shows that nearly $2\frac{1}{2}$ crores of rupees were spent on buying land last year. This money neither adds to the area under cultivation nor increases the produce from the present area.

Another serious drawback in the existing situation is that inflated land values render it practically impossible for the small owner or the tenant with a little capital to obtain land. There is no means of arriving at the number of owners who have been expropriated in recent years. But of the 960,000 sale transactions in the last 21 years, a certain proportion must represent reductions of holdings below the limit of economic livelihood, and a further proportion must represent the fall of ancient owners to the position of tenants. It is no answer to say that there must have been corresponding additions to other holdings. It is of little moment whether the well-to-do adds a few acres to an estate already large enough for his support in comfort. It is of considerable importance that tenants and the owners of uneconomic holdings should be able to look forward to acquiring land as a reward of thrift. Nearly half the land of the province is cultivated by tenants at will: many are themselves owners in the same or a neighboring village; but a considerable number are not owners, and it would strengthen the economic position in the province if they could become so.

In other countries it is practicable to buy land on borrowed money and to repay this in instalments; in the Punjab the yield would in many cases not suffice to meet interest charges.

The rise in the sale price has been accompanied by a corresponding rise in the average sum obtainable on a mortgage, but here again the enhanced credit has been productive of evil rather than of good. It has not been used to raise funds for productive purposes, and the volume of unproductive debt tends to rise steadily with the increase in credit. To one who desires to sell his land, the present high prices may be welcome, but to the cultivator intending to spend his life on his holding, these merely bring temptation to borrow. It has been said that countries under a poor system of agriculture with inefficient labor cannot maintain a high value of land, and it is not improbable that the existing uneconomic rates in the Punjab will give way if other avenues for the investment of money are opened up under conditions calculated to inspire confidence. One effect of the war has been to raise the interest receivable from government securities until it differs little from the return from land leased on a cash rent. effect may be to induce British holders of shares in local railway companies to sell at rates which would prove attractive to local capitalists. Any such tendency would probably bring benefit to the province, as it seems clear that its rapidly increasing wealth is, for want of opportunities of land investment, giving rise to a distinctly unsatisfactory situation.

THE RELATIVE PRICES OF FOOD GRAINS

G. J. E. O'BYRNE, i.c.s., ASSISTANT WHEAT COMMISSIONER FOR INDIA

Owing to the number and variety of cereals and pulses grown in India, the population is able to more varied selection of foodgrains consumption than in most other countries. As the population is mainly vegetarian, this power of selection has an important effect on national economy, enabling the poorer classes to satisfy their needs of subsistence at a smaller expense than the richer. The commonest example of this is in the case of barley and wheat. In the United Provinces a large number of cultivators habitually sell their wheat and eat their barley. As the relation in price between barley and wheat is normally about 70 per cent, and barley contains in a form available for human consumption about 84 per cent the food value of wheat, the barley consumer as compared with the wheat consumer effects a saving of about 16 per cent in a normal year. A similar saving in expenditure results from the consumption of such grains as juar, bajra, maize, ragi and gram. An examination, however, of prices shows that the normal relations are subject to very considerable fluctuations, which depend on the supply and demand of the particular grain or the supply and demand of foodgrains on the whole. The relevant portion of the law regarding these variations known as Gregory King's law as given by Professor Thorold Rogers in his Economic Interpretation of History is as follows:—

"3. If in the scarcity or excessive plenty, which prevails, as the case may be, there are several kinds of the same article which ordinarily stand in a certain ratio to each other, and can be used interchangeably, the rise of price is greatest in what has hitherto been the cheapest form; and conversely in a time of over-supply the greatest fall is in what has hitherto been the dearest. This rule will require a little explanation. Roughly speaking wheat, barley and oats stand in the ratio 100, 73 and 50. in times of scarcity, 73 and 50 will rise more than 100 does, and if there be a fall in prices owing to excessive supply, 100 will fall more than 73 and This rule is of the greatest importance in practice and in a rough manner is seen though none too clearly by practical men of business."

An examination of prices showed that over the people were willing greater portion of India. proportion for rice and wheat pay more in their food value than for juar, bajra, barley and Rice and wheat are, therefore, favored grains, and the cheaper grains will generally be ruled by the prices paid for wheat and rice. In the central part of India, consisting of Bihar, United Provinces, Central Provinces and Bombay, both rice and wheat are extensively used for consumption, and the relations

¹ In parts of the Bombay Presidency and the Central Provinces, a minority of the people, owing no doubt to long accustomed habits of consumption, would appear to prefer juar and bajra to wheat.

in price of the cheaper grains with both rice and wheat come into play.

I first examined the food values of the various grains to see how far the difference in price was due to inferiority of actual food contents.

Professor Church in his Foodgrains of India has given us the analysis of the constituents of all the common cereals and pulses. From this a calculation gives the number of calories or measures of food values contained in any particular grain. The main difficulty in comparing grains according to their food values lay in calculating the amount of husk, which was lost in converting the grain into a product fit for human consumption. From enquiries made it would appear that in ordinary millstone milling for production of coarse flour such as is generally consumed the loss for husk will average for wheat about 7 per cent, barley 20 per cent, gram 11 per cent, juar 15 per cent, maize 10 per cent, and bajra 5 per cent. Common rice, of course. as it is ordinarily sold, has the husk already removed so that no allowance for husk is necessary. ing on this basis the number of calories contained in 100 grams of each grain is as below:--rice 357, wheat 329, barley 277, gram 329, maize 331, juar 304, bajra 351. If cheaper grains be compared with rice and wheat, the food values contained therein. subject to variations of quality, may be shown as below:-

Food values as compared with wheat=100 Barley Rice Gram Maize Juar Bajra 109 84 100 100 92 107 Food values as compared with rice = 100 Wheat Barley Gram Maize Juar Bajra 78 92 9292 86 98

These food equivalents are not exact for the following reasons:—(1) The percentage of moisture

in food grains is not constant, and an excess of moisture will reduce the food value of the grain in proportion to the excess. The extent to which the percentage of moisture in wheat varies may be judged from the result of experiments made by Mr. Maxwell-Lefroy, Imperial Entomologist, shown in his contribution to the Indian Trade Journal of November 18th. 1909. He found that two samples just threshed and straight from the field contained 6.7 and 7.2 per cent of moisture. The same sample dried in the sun for some days contained 4.7 per cent of moisture. The same wheat left open in the air till July contained 14.1 per cent of moisture. The average composition of Indian wheat as found by Professor Church was 12.5 per cent of moisture. Professor Church appears to have conducted all his analyses in England. In the case of maize it is found necessary to allow for dryage of from five to ten per cent on maize purchased in this country for sale in Europe, which indicates that the grain in this country contains five to ten per cent more moisture than the same grain in England.

The cheaper kharif grains such as juar, bajra and maize are generally consumed in India in the months immediately following harvest, when they may be expected to contain a considerable excess of moisture and their food values may generally be taken as being less than that shown above. In the case of barley and gram, which are consumed pari passu with wheat generally throughout the year, the variation in moisture, as far as it affects the proportionate price, will not be great.

(2) In the above proportionate values no allowance has been made for the cost of labor in preparing the foodgrain for consumption and the value of the bran and husk produced. The cost of labor involved

does not vary directly with the price and the proportionate cost of labor will be considerably higher in the cheaper grains.

It is not, therefore, possible to work out an exact natural equivalent price relation between the various grains, but the above relations with allowance for moisture in the case of *kharif* grains will indicate the limits to which the price relations will tend to converge, when all food grains are in demand simply for their food values.

It is a well-known phenomenon of famine times in India that the prices of the cheaper grains tend to approximate to the prices of the dearer. Unless we assume that the tastes of the population entirely change, the price of the cheaper grains in general consumption when the dearer grains are also available cannot rise, owing to demand for human consumption, higher than the point, where an equal amount of food is obtainable for the same price whichever grain is consumed, that is to say, when the prices are at their natural price relation. Taking wheat and barley in the United Provinces, the maximum price relation on the average, in any one year, was 79 per cent reached in the famine years of 1896 and 1897. is probable that at certain times during those years, the price relation may have reached 81 per cent, as the latter percentage was reached in Meerut in one year, and 84 per cent was the natural price relation found by comparison of the food values of wheat and barley. With gram the case is somewhat different, as, compared with wheat and rice, it contains a much larger proportion of proteid, and when proteid is in special demand owing to scarcity of pulses, the proportionate price may rise somewhat higher than its food value, as measured in calories, would warrant. Thus the price of gram has been

known to average as high as 101 per cent and 103 per cent the price of wheat in the United Provinces and the Punjab although its natural price relation is about 100 per cent. In years of plenty as evidenced by low prices and generally by large exports the price relations of the cheaper grains tend to fall lower than the average, but the fall below average will not be so great as a rule as the rise above average. To this extent the prices of food grains in India tend to bear out Professor Thorold Rogers' enunciation of Gregory Smith's Law.

I have tabulated in the Appendix the average price relation, the maximum average over any one year and the minimum average over any one year of the cheaper grains to wheat and rice in various provinces. It will be seen that almost invariably the maximum price relations are reached in years of scarcity and the minimum relations in years of plenty. These maxima and minima are averages over a whole year and are not absolute as the relative prices in any given year are also liable to fluctuations, so that the maxima and minima shown have probably been exceeded. If the maximum relations to wheat be examined, excluding gram as possessing somewhat different food constituents, it will be found that the only grain which exceeded the price relation, worked out on food values, was juar in the Punjab in 1900. Now the price of juar, when the demand for seed is great, frequently exceeds the price of wheat and the quotation, as far as human consumption concerned, may be a purely nominal one. juar is often only available during its season and at a period when the price of wheat is considerably above the average price of the year, so that the price relation worked out on the yearly average is not accurate.

In the relations to rice it will be seen that the price of barley exceeded its natural price relation in Bihar in 1897, juar its natural price relation in Bombay in 1900. This, however, serves to illustrate that the prices of these grains are governed by the price of wheat as well as rice. Thus barley in Bihar in 1897 sold at 3 points higher than its natural relation with rice, but at 4 points lower than its natural relation with wheat. Similarly juar in Bombay sold at 5 points above its natural price relation with rice, but at 10 points below its price relation with wheat in 1900.

The average requirements for human consumption in India per head of the population are between five and six maunds per annum. The average retail price of food grains in India for the ten years ending 1916 was just under Rs. 4 per maund. Assuming the grain consumed by the cultivator may be valued at wholesale rates, a valuation may be taken at Rs.3-8 per maund. On 5½ maunds this valuation will give us an expenditure per head of Rs.21 per annum. If the annual income per head in India be taken during those years at Rs.45 to Rs.50, expenditure on. food grains would absorb between 42 and 47 per cent of the income. It is not surprising therefore that variations in price relations have an important effect on the kind of food grains consumed, as the consumer is attracted to consumption by comparative cheapness and repelled by comparative dearness.

This change in consumption, due to or accompanying a change in relation of price in the case of wheat and rice, is clearly brought out in municipal statistics of consumption. Thus in the years 1912-13 and 1913-14, when rice was selling on the average at about 152 per cent the price of wheat in Benares and 142 per cent the price of wheat in Lucknow, the

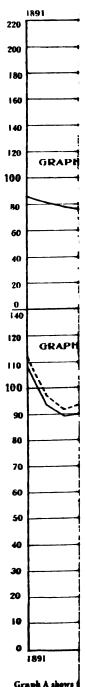
consumption per head per annum in Benarés was 2.11 maunds of wheat and 1.56 maunds of rice, and in Lucknow 3.12 maunds of wheat and 1.01 maunds of rice. In the years 1914-15 and 1915-16 on the other hand, when rice was selling on the average at about 125 per cent the price of wheat in Benares and 122 per cent the price of wheat in Lacknow, the average consumption per head was in Benares 1.84 maunds of wheat and 1.77 maunds of rice and in Lucknow 2.58 maunds of wheat and 1.36 maunds of rice. Bombay Presidency, excluding Bombay city, habitually imports foodgrains from other provinces. In years 1909-11 when rice was selling at about 102 per cent the price of wheat in the Presidency, the percentage of the net import of rice to the net import of all foodgrains was 48 per cent; in 1911-14 when rice was selling at 121 per cent the price of wheat, rice formed only 24 per cent of the net imports; and in 1914-16 when rice stood at 110 per cent the price of wheat, rice formed 51 per cent of the net These illustrations, which are in accordance with ordinary economic laws, have only been given to show that their operation is clearly evident from statistics and that a rise or fall in the normal price relation of two commodities means or occasions generally a fall or rise in relative consumption.

I have taken the prices of the United Provinces as an illustration in the accompanying graphs (see diagram opposite p. 408). This province produces and consumes the largest quantity of foodgrains, and is normally self-supporting; it is served by a network of railways, which prevent local peculiarities from having undue influence, and the position of the province is such that it can easily supply other provinces or draw on them in case of shortage. Rice and wheat are consumed in approximately equal quantities by the population, as, although

the area under wheat is generally greater than the area under rice, wheat is usually exported and rice imported. Prices have been taken from *Prices and Wages* for the years 1891-1916. Prices for 1917 and 1918 up to September have been compiled from the retail prices in the fortnightly publication of wholesale and retail prices, and those from September onwards from the Government Gazette.

The price relations of rice, wheat and gram to rice and wheat were worked out year by year. The relations of the kharif grains juar, bajra and maize were also examined. Prices of the kharif grains are not quoted in most of the markets for more than a few months of the year, so that the annual average prices are not correctly speaking averages for the year at all. The variation of their relations with wheat and rice, so far as can be ascertained from these prices. agrees closely enough with the variation of relations of gram and barley to show that the general trend is the same. The general trend of these relations is to rise in years of scarcity such as 1896, 1897, 1900, 1906, 1908, 1914, and to fall in years of plenty like 1893, 1894, 1904, and 1911. This result has been shown in a simple form in Graph B where the relation of the mean price of gram and barley as compared with the mean price of wheat and rice is in percentages of the average price over a series of years which is 65.4 per cent. arithmetical mean of gram and barley has been taken as gram and barley are of approximately equal importance in the food-consumption of the people. curve of the weighted mean relation of gram, barley, juar, bajra and maize to rice and wheat has also been shown by the broken line to demonstrate that the relation of gram and barley to wheat and rice represents the general relation of the cheaper grains sufficiently well

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except in the year 1908, when the gram and barley relation was too high owing to the phenomenally low area under gram in India in 1907-08.

The general level of prices of food grains is shown in Graph A. The prices are roughly weighted in proportion to their importance, wheat and rice with 4 and gram and barley with 3. The curves have also been shown for the years 1917 and 1918 by fortnight or month. The average price level from 1891-1915 is Rs. 3.19 a maund which has been taken as 100.

If the Graphs A and B be compared, the closeness of their relation is apparent. The rise and fall agree except in 1894 and 1899, when the price relation curve anticipated the large rise in prices in the following year, and in 1915 when a similar fall in 1916 was anticipated. In 1906-7 the price relation was falling while prices were rising. It is a well known fact that there was a general rise in price of food grains all over India between 1904 and 1908, and prices have never since fallen to their former level. A general rise in prices, not wholly due to scarcity, would not affect the price relations of the food grains so that this fall of price relations in 1906-1907 indicates that it was mainly in these years that the general rise of prices took place. After the scarcity of 1900 the price level of food grains appears to have risen somewhat. When the price relation stood at 100 the price level in 1892 stood at 82, in 1895 at 82 and in 1899 at 79, averaging 81. When the price relation was at 100 the price level in 1901 was at 95, and in 1905 was at 96. When the price relation in 1906-7 was at 100 the price level stood at 114 and in 1907-8 at 123.

Up to the end of 1917 the price levels when the price relation was at 100 were as below:—

Year	or month	I	Price level
	1908		128
	1909		122
	1918-14		124
	1916		126
March	1917		126
December 1st	1917		127
		Average	1241

From this it would appear that there was a general rise in the prices of food grains between 1899 and 1901 of 18 per cent and in 1906 to 1907 of 31 per cent. The remarkable feature of the latter table is that in spite of the war there was no general rise in the level of prices of food grains in the province up to December, 1917. Prices in 1914 and 1915 ruled high, but that was owing to actual scarcity, as the area under food grains in the province in 1913-14 was about 4 million acres below average, and the province, normally an exporting one, was forced to make a net import from other provinces of over 300,000 tons of food grains in 1914-15.

The above argument is open to the objection that the price relation may be undergoing a process of variation, in that the people may be developing a greater preference for wheat and rice as compared with gram and barley. The fact that the price relation was lower in 1904 than in 1894 and lower again in 1911 appears to bear out this point of view. This lowering in the price relation was however accompanied in each case by a greater surplus of food grains as shown by export. The exports of wheat, gram and barley in 1904 exceeded those of 1894 and the exports of 1912 exceeded those of 1904. Secondly, it may be argued that the compara-

tive rise in the price of wheat and rice in good years may be due to the export demand. It may be freely admitted that the export demand for wheat will tend to have that effect, but the effect is small as there was a very heavy fall in the price relation for 1900-01, yet the export of wheat in 1901 was small. Lastly, a relatively good year for gram and barley and bad year for wheat and rice and vice versa would affect the relation. This, however, will rarely occur to an appreciable extent and the curve based on the kharif food grains shows that the curve of gram and barley is sufficiently accurate.

An examination of the variations in the years 1917 and 1918 reveals much the same features previous years. It may be taken generally that in a given year there are two seasons of plenty caused by the advent of the rabi and kharif harvests. both 1917 and 1918, prices and price relations In 1918 dropped in April. there was no in August owing to partial failure of the rains. price relations in 1918 differs little curve of in 1917, until about July from the curve 15th. From that date they are divergent. The general level of prices in the first half of 1918 was decidedly higher than in 1917. I have shown that, when the price relation was at 100 from 1908 to December 1st, 1917, the price level stood at about 124. March, 1918, the price level, however, was at 143, and on September 1st the price level was at 167,1 which would indicate a real rise in the general level of food grain prices by March, 1918, of 18 per cent, and by September, 1918, of 35 per cent, and that the cultivator is obtaining a lift in the general level of food prices similar to that experienced in 1906 and 1907. In October the level of price relation stood at about ¹ At similar points in the 1918 curve for 15 districts in the Punjab the price levels were at 142 and 174 respectively.

the mean between the averages for 1908 and 1914, but prices ruled actually 37 per cent higher. It is impossible to foresee whether the rise in the latter months will be maintained or whether it is not due to effects of temporary speculation or the demand for food grains in other provinces, the cost of freight on Burma rice, or other causes. During the period considered in the province, however, there is no example of the food grain prices falling again to their former level after a general lift in prices.

APPENDIX

MAXIMUM, MINIMUM AND AVERAGE ANNUAL PRICERELATIONS TO WHEAT IN PERCENTAGES OF WHEAT PRICES

Province		Maximum	Minimum	Average
Gram				
Punjab	• • •	108 (1900)	64 (1898)	80*
United Provinces	• • •	101 (1897)	66 (1898)	80°
Central Provinces		102 (1907)	78 (1910)	86
Bihar		98 (1914)	67 (1910)	79
Bombay	•••	98 (1896)	72 (1910)	88
BARLEY		1		
Punjab	•••	79 (1900)	60 (1909)	68*
United Provinces		79 (1897)	58 (1909)	70 [‡]
Bihar	•••	79 (1897)	59 (1909)	68
MAIZE				
Punjab	•••	88 (1897)	62 (1904)	76*
United Provinces	• • •	81 (1891)	56 (1909)	68 *
Bihar	•••	85 (1906)	58 (1909)	6 8
JUAR				
Punjab	•••	96 (1900)	62 (1904)	68 *
United Provinces		84 (1906)	59 (1909)	74*
Central Provinces		84 (1918)	56 (1908)	72
Bombay	•••	82 (1900)	54 (1908)	67
Bajra				_ 44
Punjab		104 (1906)	71 (1909)	89*
United Provinces		94 (1896)	61 (1909)	79 *
Bombay	•••	87 (1895)	60 (1908)	74
BAGI				
Bihar		77 (1899)	58 (1909)	62

^{*} Average of years 1891-1915; the remaining figures are averages for the period 1892-1916.

MAXIMUM, MINIMUM AND AVERAGE ANNUAL PRICE-RELATIONS TO RICE IN PERCENTAGES OF RICE PRICES

Province		Maximum	Minimum	Average
GRAN				
United Provinces	• • •	· 87 (1897)	45 (1911)	62*
Central Provinces	•••	95 (1900)	59 (1911)	75
Bihar.	•••	91 (1897)	61 (1911)	78
Bombay	•••	101 (1900)	61 (1894)	76
BARLEY				
Uuited Provinces		72 (1896)	42 (1911)	55*
Bihar	•••	81 (1897)	51 (1918)	64
MAIZE				
United Provinces		70 (1896)	41 (1911)	58*
Bihar	•••	75 (1906)	51 (1918)	68
JUAR				
United Provinces	•••	76 (1896)	46 (1904)	59*
Central Provinces	•••	80 (1900)	48 (1908)	62
Bombay	•••	91 (1900)	47 (1908)	61
Madras	•••	72 (1900)	46 (1908)	60
Bajra				
United Previnces	•••	90 (1896)	50 (1904)	62*
Bombay	•••	95 (1900)	52 (1908)	67
Madras	•••	71 (1905)	54 (1908- 1904)	68
Ragi -	 			
Bihar	•••	71 (1899)	45 (1918)	56
Madras		68 (1900)	47 (1908)	55

^{*} Average of years 1891-1915; the remaining figures are averages for the period 1892-1916

CURRENT NOTES

The outstanding event since the appearance of our last number has been the conclusion of the Armistice with Germany (November 10th). This has not immediately modified the economic situation in India. except to a small extent by releasing many firms hitherto wholly engaged on Government contracts for munitions so that they have already commenced booking private orders. The reversion of industries to a peace footing is said to have been accomplished (January, 1919) in the United States. The Government there, as in India, still retains shipping and railways. The close control over Second Indian War Loan closed in September last with a subscription of over 51 crores. Additional since received through the Post subscriptions Office bring the total up to over 54 crores. This figure is excellent when it is considered that the kharif harvest was a failure throughout the Deccan and a large part of the United Provinces and Central India, so that a condition of scarcity was in October or thereabouts in a number of districts. A famine commissioner has just been appointed for the United Provinces, and the outlook is serious also India, therefore, will not be able to in Bombay. export surplus foodstuffs during the present season until the next rabi harvest which has been greatly benefitted from rains the at end of

Purchases of wheat have been made in Australia mainly for use of the armies in India and Mesopotamia.

General imports having been on a fairly high value during 1918, the balance of trade showed some signs of turning against India in the autumn, and the Government of India undertook to sell sterling transfers to the amount of one million pounds per week. rate of exchange has remained at 1s. 6d.; and it appears to be the policy of Government to keep it at this figure so long as the price of silver remains firm at 48 pence or more. The tendency of prices in India has continued upwards except in the case of cotton cloth, the market for which collapsed suddenly on the announcement of the conclusion of Armistice with Turkey in October and in view of the cotton cloth control scheme and the imminence of placing of standard cloth upon the market. As the prices of cotton piece-goods fell by thirty or forty per cent in the bazaars throughout the country, the application of the Government scheme for the sale of standard cloth was suspended, the administrative machinery being kept in readiness for application should it be necessary owing to prices rising again. This contingency has arisen in Bihar and Orissa and parts of the United Provinces at the end of January, 1919, and a small percentage of looms is now being put under control to manufacture standard cloth.

The most serious economic disaster from which India has suffered for many years was the great epidemic of influenza which began its second, and more serious, visitation in Bombay in September last and then spread rapidly almost throughout the whole of India. It

was raging in the United Provinces and the Punjab during November and then spread out to the North-West Frontier and Afghanistan and over the Himalayas into Tibet. The mortality was unprecedented especially in the rural districts, some villages losing from 50 to 80 per cent of their inhabitants whilst others suffered much more lightly. The disease appeared to have two forms, a virulent and a mild form, and a very high percentage of deaths from pneumonia occurred in families or villages attacked by the virulent form. It may be estimated that throughout India eight to ten million persons succumbed to influenza during the last few months of 1918.

The first Conference called by the Indian Economic Association was held in Bombay on December 30th and 31st, and January 1st last and it was an unqualified success. The meetings of the Conference were held in the Senate Hall of the University of Bombay and opened with an address of welcome from Professor Percy Anstey. who in the capacity of Honorary Local Secretary had made all arrangements for the Conference. Anstey presided over all meetings of the Conference for the reading and discussion of papers, which were held on the morning and afternoon of the first and third days and on the morning only of the second day. On the afternoon of the second day a very important business meeting was held at which the draft constitution of the Indian Economic Association, which had been prepared by Professors Gilbert Slater and Coyajee, was submitted for discussion and adopted. Another business meeting was held the next day at which the following were appointed officers: Chairman of the Committee-Professor P. Anstevi Honorary Local Secretary for Madras Conference-Dr. Gilbert Slater; Hon. Treasurer-Prof. H. Stanley Jevons; Hon. General Secretary-Prof. J. C. Coyajee.

REVIEWS OF BOOKS

RELATING TO INDIA

The Foundations of Indian Economics. By RADHAKAMAL MUKERJEE, M.A., Premchand Roychand Scholar, Calcutta University, Professor of Economics, Krishnath College, Berhampore, Bengal; with an Introduction by Professor Patrick Geddes. London and Bombay: Longmans, Green & Co., 1916. pp. xxvi, 515. Price 9s. net.

The author made rather an unhappy choice of title when he called his book "The Foundations of Indian Economics", for this suggests a philosophical analysis of the economic structure of India, which would draw upon It is true that some of sociology and economic theory. the chapters contain material which might contribute towards a work with this title-we refer to chapters such as those on "The Religious Element in Crafts and Industries" and "The Restoration of the Village", but the greater part of the book is descriptive and ephemeral. We do not wish to write disparagingly of the book as a whole, but we cannot be enthusiastic about it. The impression given is that it represents the ambitious work of a young man, brought to a rather hasty conclusion. If the author had worked with more judgment, and had spent another six months in carefully revising many of the chapters so as to make the book more homogeneous, it might have become a work of real value. As it is, one may say briefly that it is a book which may be read with much profit for the sake of its information and ideas; but that the reader must receive cautiously the author's many hastily-drawn conclusions and his occasional wild assertions. We have space to quote but two typical examples of the latter: "Thus the modern phase of industrialism in the West is tending to destroy the very roots of culture and originality, and is thus defeating its own ends" (p. 337), and "India will not adopt

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Western Industrialism in its modern phase with its too exclusive adherence to the principle of division of labor, its deficient organization towards general well-being." The second quotation is followed by five pages (pp. 448-52) of confident assertions as to what India will and will not do. We have never come across any author who claimed such omniscient powers of prophesy. There is much to be said in favor of the line of economic development which the author foreshedows in this prophesy. Had he stated these ideas as a program of reform to which all efforts at economic development should be directed, so that they might give, under the conditions he has portrayed, the results prophesies, they would have commanded much respect and attention. As it stands, this section is a grave blemish on the book. Further, it is impossible but to feel that the author has only a superficial knowledge of the economic and social history of Western Europe. Had he studied that history in detail, he would have been justified in making his frequent comparisons with western conditions which now usually miss their mark, and he would have avoided basing some of his criticisms of the western economic order on the one-sided view presented by the opinions of some of the socialist writers he quotes.

Having said so much to warn the reader to be on his guard, we are glad to add that there is much in the book that we appreciate and value. It is refreshing to find an Indian economist striking out a new direction thought in relation to the industrial development of India. We agree with Professor Mukerjee that the serious social evils which have been associated with the industrial development in the West should be avoided in India by better organization of society; but it will need a great education of the public to do this which has not yet begun. things are allowed to develop unguided, social conditions seem to us likely to become quite as bad as they were in Professor Mukerjee remarks on the growth of individualism and deplores the squalid slums in Bombay and Calcutta. Why, then, is he so optimistic that India will not follow the western lines of development? It appears to us that there is a danger that most of the bad features of European industrial development will be exhibited in India unless a great campaign of propaganda in educa-

tion of the populations of our cities be undertaken. The author believes that there is a great future for the cottage and workshop industries. In this we agree with him. the early stages of the industrial development it is natural that there should not be many Indians capable of industrial management on a large scale; but there are many young men who can quite successfully manage small establishments, and having gained experience and capital through past successful work on a small scale, many of them will gradually increase the size of their establishments until they, or their sons, own large mills and factories. In many towns throughout India there has been a very striking growth of small flour mills and oil mills, etc., driven by electricity or oil engines. Starting often with a single stone-mill, another two or three are added as the business expands. We think the author has done well to call attention to the big field lying open in this direction; and we think that technical education should be mainly directed to development of small-scale power-driven industries.

The book as a whole suffers from being largely compiled from the author's previous writings such as his thesis for the Premchand Roychand Research Studentship articles published in many monthly reviews and magazines. The volume is divided into four books, the first dealing with "Social Environment" in which a great deal of useful material is mixed with obvious platitudes. The second book is purely descriptive, the successive chapters dealing with different cottage and village industries-mainly, however, as they occur in Bengal and parts of the neighboring This descriptive portion of the book occupies Provinces. 200 pages and is full of very useful information partly compiled from official documents, but to a very great extent the result of the author's own enquiries in the rural districts of Bengel. The photographs of different village industries are very interesting and useful, and are well taken and reproduced. The third book is brief and devoted to "Credit and Trade Systems". Here the chapters "The Organization of Rural Credit" and "The Organization of Rural Trade and Transport" contain much useful information. The fourth book deals with "The Economic Progress of India", and contains the only unsatisfactory part of the volume. We could find here on almost

every page something with which we disagree, or which is untrue, or which is inapplicable at the present day. although it may have been true twenty years ago.

We are grateful for an Introduction to the volume by Professor Patrick Geddes in which he has given us with singular clearness the difference between the paleotechnic or early Industrial age, with its confused jumble of productive efforts and social neglect, and the neotechnic industrial order in which the greatest advantage is to be obtained from the triumphs of mechanical invention by so organizing the whole of society that social losses are eliminated and benefits well distributed.

H. S. JEVONS

The Governance of India, being a commentary on the Government of India Acts of 1915 and 1916, with additional chapters on Indian Local Government, the Indian Army, Indian Finance and the Native States of India. By K. T. Shah, B. Sc. (Econ., London). Bombay: Rem Chandra Govind & Son. 1917. Price Rs. 3.

The frequent appearance of books on the Indian Constitution or Administration shows that a new interest is now being taken by Indian scholars in the study of Indian constitutional and administrative questions. Such a study has been facilitated by the enactment of the Consolidation Statutes of 1915 and 1916 which our author takes as his back-ground upon which to trace the outlines of Indian political institutions.

In an Introduction of 28 pages the author describes what he calls "the special difficulties of an Indian writer" on the Indian Constitution. If, however, he had consulted certain recent publications, many of his so-called "difficulties" would have disappeared, and he would not have made little of "indigenous writers" as only ministering to the needs of "the undergraduate world".

The body of the book is divided into twelve chapters corresponding, more or less, with the different chapters of the Act. The author's plan is to take a few sections of the Act and to follow them up with long commentaries. The twelve chapters deal respectively with the Home Government, the Secretary of State, the Governor-General Council, Local Government, the Indian Legislatures, the Public

Services in India, Judicial Administration, the Church in India, Local Government in India, the Indian Army, the Native States of India, and miscellaneous items. There are also two appendixes, one dealing with Indian Finance, and the other containing the Government of India Amendment Act of 1916. We think that it would have been better had the author incorporated his notice of the amendments with his discussion of the original Act.

The author frankly expresses his own personal opinions on the most controversial questions of the day. The goal of educated India, according to him, is "that the real Government of India should be in India responsible to the people of India" (p. 16), and that "the effective powers of no authority in England, however constituted, should be increased at the cost of the authorities in India, if our ultimate goal is self-government in India". He desires "Parliament to abandon altogether the principles which have so far governed the Empire of India", for "the myriad problems of India must be and can be solved only by the Indians in India. Strangers to Indian life and sentiment, animated with the nobler motives which have governed the best of Englishmen, may be efficient rulersmay even be good rulers—so long as the functions of the State are no more than those of a policeman. Change the ideal of the State, and no one people could govern another, especially those utterly dissimilar in their habits and sentiments as the Indians and the English". It is needless to quote more of such passages—they are sufficient to show that the author writes as a partisan of the "Home school of Indian politics (cf. pp. 174-8). Though Rule " this may detract from its value as a scientific study of the Indian Constitution, yet one cannot but admire the . freshness of the author's views, and the forceful manner of their presentation, as, for example, in the section dealing with Provincial Autonomy (pp. 112-9).

When the author brings out a second edition of his book, we hope he will correct his statement on page 176 that the Education Department of the Government of India deals only with matters educational, for in fact the same Department deals also with municipalities, local boards, public health, and matters ecclesiastical, which the author places under the Home Department (p. 75). Nevertheless the author's

comments are in general the result of wide study, and they will afford interesting and instructive reading to students of current Indian politics.

P. MUKHERJI

Year Book of the Jheria Mines Board of Health for 1918. Published at the office of the Jheria Mines Board of Health, Dhanbad, district Manbhum. 1918. pp. 146.

The Jheria Mines Board of Health is in charge of the sanitation of the largest and richest coal-field of India and the efficiency of its work affects not merely the health of a hundred-thousand workers in the mines but also the prosperity of the coal mining industry. The Board is to be congratulated, therefore, upon the exceedingly practical Year Book which it has issued and which it circulates free to all mine-owners in the Jheria coal-field. After an explanatory preface the volume contains a reprint of the Mining Settlement Act of 1912 and of the Rules framed under the Act which give the Board and its Sanitary Officers all the necessary directions and power. Then follow the Notifications issued under the Act, and a reprint of the Epidemic Diseases Act of 1897, and the temporary Regulations and Order issued thereunder. Then comes the Board's Annual Report for 1916-17, and the bulletins issued by the Board, dealing with such subjects as the causes and prevention of cholera, the notification of infectious diseases, the habits and life-history of the mosquito, the diseases conveyed by it, and the precautions which should be taken to combat them. We next find reprints of a series of sanitary placards intended to be posted in colliery premises. Both the bulletins and the placards are exceedingly clear and practical, giving minute directions for the sanitary precautions necessary to preserve health in any city or industrial community. They would serve as most useful models for municipalities to use or adapt to local circumstances throughout India. Part VII of the volume contains a reprint of the Report of the Committee on the Housing of Labor in the Jheria Coal Field and Government Resolution thereon. VIII contains in-Part formation on most varied subjects that may be useful to the managers of Jheria mines; and the volume ends with an appendix of forms for official notifications.

Introduction to the Study of Indian Economics. By V. G. Kale, M. A., Fergusson College, Poona. Second edition. Poona: Aryabhushan Press. 1918. pp. 8, vii, 514, v. Price Rs. 5.

Seldom, if ever, has a book on Indian economics met with so ready a reception from the public as has been accorded to Professor Kale's text-book, if we may judge from the fact that a second edition was called for within a few months after publication of the first edition. Undoubtedly the public demand is thoroughly justified, for the book is a great advance over everything of the kind relating to India hitherto published. Not only does it cover a wide field; it is distinguished by a philosophical spirit and an impartial and balanced judgment, such as have unfortunately been conspicuously absent from the previous writings of almost all Indian authors about the economic conditions of their country.

It will be of interest briefly to review the subject matter covered by the book. The first two chapters are of a general character and discuss the peculiar economic conditions of India and its ancient civilization, the nature of the economic policy of the State and the importance of economic studies in defining it. In the second chapter we have a more specific discussion of the Indian outlook-both spiritual and material. The character of the civilization in India is briefly considered, and the relation of religion to material progress. This leads up to a discussion of Indian ideals and an attempt at a reconciliation of the æsthetic ideal with the material outlook of progressive western nations. We begin in the third chapter the concrete discussion of the factors of production. The characteristic features of Indian agriculture are discussed and indicated by a summary of agricultural statistics. pointed out that the mass of the Indian people attribute to the soil almost exclusive productive capacity, and other industries appear to them more or less parasitical. This was the view of the physiocrats of the 18th century, and the authorregards it as a natural opinion in a social economy where agriculture predominates. The fourth chapter is entitled "Human Effort" and deals with labor as a factor of The peculiar characteristics of labor in Indian agriculture and in the village crafts and in the factories which are springing up in industrial centres are dealt with in considerable detail, a special reference being made to the

shortage of labor-supply for industrial purposes and the great wastage of labor power now prevalent. The succeeding chapter deals with "The Part of Capital", its investment in improved implements, the hoarding habit, the conditions of saving, and the mobilization of capital by banks and companies. The latter point is taken up more fully in the sixth chapter which is devoted to the organization of production both industrial and agricultural. In the next chapter the population question is considered from various aspects, and in the eighth chapter we have the economic revolution traced through all its stages, due to the growth of foreign trade and extension of railways.

Subsequent chapters are devoted to "Commercial Policy"i.e., whether freedom of trade or protection will be most beneficial to India, to "The Currency System", and to the discussion of the "Foreign Exchange", including Gold Exchange Then follows a discussion of indigenous banking Standard. and of the modern growth of Exchange Banks and Joint Stock Banks: and the co-operative movement is then described. The later chapters are devoted to the economic aspects of certain broad social questions. We have first of all an admirable discussion of the relation of the State with land-lords and tenants involving a summary and critical examination of the various Tenancy Acts of the different Provinces. Then, in Chapter XV we have a description of the relations of labor to the growth of the factory system, and the necessity of State regulation. In Chapter XVI is a description of Taxation which touches on the nature of land-taxation and on the Permanent Settlement, on the income tax, and various other questions. The last chapter begins with a description of price levels and the Quantity Theory of Money, and passes on to the description of the effects of high prices and of speculation, and to a description of the standard of living and the relations between consumption and prosperity.

On the whole the book is remarkably accurate, considering the number and variety of the subjects it deals with. Further inquiry and research might, we think, have led the author to present some important facts which are omitted, and to arrive at different conclusions on certain important questions; but on the latter he has faithfully reflected the prevailing opinions, and it could hardly be expected that he could personally test all accepted theories.

We may briefly examine a few of the subjects on which he touches, as, for example, the extent to which indigenous capital is invested in modern industrial concerns (pp. 96-8). The author states that almost the whole capital of the cotton mills has been raised in India; that the tea plantations are most of them joint stock concerns registered in the United Kingdom; that the jute industry also is "financed by European capital"; and that "the bulk of the capital invested in the coal and gold mines has been imported." If this had been written twenty years ago it would have given a fairly correct impression, but the situation has changed very much in recent years, more and more Indian capital having flowed into the large-scale industries originated by European enterprize, whether still controlled by it or not. For instance the coffee and tea plantations of the South, and the smaller tea estates of Darjeeling and many other districts have been increasingly bought by Indians, besides their purchases of shares in companies, so that probably a fourth to one-third of the capital of the industry is in Indian ownership. mills and coal and gold mines were practically all, except the smallest, started with British capital, but a steady sale of shares has very largely transferred the ownership to Many small coal mines have been opened by Indians, and it may be estimated that in privately owned mines, as well as companies, about half the capital now belongs to Indian proprietors. In miscellaneous industries an increasingly large proportion of capital is Indian. enterprizes originated in Bombay capital is almost wholly Indian from the start; but in Bengal and Upper India the European firms often start enterprizes with the intention of selling out a large part of their share-holding to the public, mainly Indian of course, as soon as the payment of a good dividend enables a handsome price to be had for the shares.

Another important case of erroneous information, as we believe it to be, occurs in the section dealing with the effects of the land tenure system (p. 401). We read: "The State takes a certain well-defined share of the rent received by the landlord from his tenants, say 60 per cent. Such a large share could be justified on the ground of State proprietorship of land, but if it is a tax, it appears

to be comparatively too heavy". The author writes: "say 60 per cent" as if he thought that is approximately the true average figure; but we think that a brief personal inquiry in two or three widely separated parts of the country would soon have convinced him that this is a gravely inaccurate statement. He appears simply to have repeated a percentage which has been currently quoted for Meanwhile rents have been rising more than a generation. far more rapidly than land revenue. Professor Slater quotes for Madras a case in which he found the land revenue Rs. 5 per acre for land of which the rent Rs. 30 per acre, and another in which the revenue was only Rs. 1-8 per acre and the rent Rs. 40 per acre. In the Punjab canal colonies the land revenue demand, for much of the land, is only one-tenth to one-eighth of the rent obtained. In the United Provinces, in some instances which have come under our own notice, there was considerable variation in the ratio of revenue to rent. the average being about 85 per cent, and the lowest figure in a district at some distance from a railway about 20 per cent, the highest nearly 50 per cent. The revenue is much less than 20 per cent of the rent in lands near growing towns under an old settlement. In recent settlements United Provinces the net assets have been taken at than the actual rentals, and owing to the operation of the Government of India rule limiting the increase of total revenue at a new settlement to 881 per cent, except with special permission for exceptional reasons from the Government of India, the settlement officer could not take as much as 45 per cent of the net assets, which was the standard adopted in the Government of India Resolution of 1902. The revenue cannot in such cases be more than from 35 to 40 per cent of actual current rentals: and as the settlement is for thirty years and prices are rising and likely to continue doing so, it is probable that 25 years hence the revenue will be on the average but 10 per cent of the rate of rent actually collected. The fact is that the rayat's standard of living determines his earnings, and competition leads to so much of the surplus (i.e. economic rent) as is not claimed by Government being paid to somebody as landlord. is to a great extent true even in ryotwari tracts. Another misleading statement is to be found on page 445 in the

comparison of the incidence of taxation in India and in the United Kingdom. Here the per capita income is taken at Rs. 35 in 1918-14 although on page 158 it is estimated at Rs. 45 in 1915-16, equivalent to an increase of nearly 30 per cent in two years. In our opinion Rs. 45 is a low figure for 1915-16, and we would refuse to accept any figure lower than Rs. 42 for 1913-14, or more accurately for the average per capita income of the three-year period 1912-18 to 1914-15, a three or four years average being necessary on account of the great variability of the harvests. On this basis the national income of British India was 1050 crores, and the taxation 95.8 crores in 1918-14, which is approximately 9.1 per cent, instead of the figure 10.5 per cent given by the author. The similar ratio for the United Kingdom for the same year the author gives as 11 per cent. As the standard of living and thus the intensity of wants is much lower in India than in England, it is difficult to say whether 9 or 10 per cent in India represents a greater sacrifice than 11 per cent in the United Kingdom. We agree with the author that it depends on efficiency of the expenditure of the public revenues.

We think it necessary to express our disagreement with the author when a little further on (p. 447) he confuses land revenue with income-tax, and objects to the poor rayat who cultivates an uneconomic holding being taxed in land revenue at the same rate per acre as if his fields were part of a larger holding capable of supporting him; because to meet his total expenditure, including the land revenue, he must find some industrial or other employment for part of his time. The rayat may even have to borrow to pay his land revenue. The author regards this as "a serious defect of a general property tax," and would prefer that persons earning small incomes by cultivation be totally exempted from land revenue as they are from income tax. He does not inquire whether this would be reasonable, nor what the effects would be. It is not necessary to consider It is reasonwhether land revenue is a rent or a tax. able under present conditions to call it a land tax, as the author does. But, as a land tax it is clearly a tax on the economic rent of land; in other words it is not personal like income tax, but attaches to the land, just as a customs duty does to the goods. Hence whoever

uses the land may reasonably be required to pay the tax. It is his own concern if he chooses to do his cultivation on so small a plot of land that he cannot live on the profits. Since so many persons do choose to cultivate uneconomic holdings rather than migrate permanently to cities, the only result of abolishing or reducing the land tax on small holdings would be that the law of inheritance requiring equal division of the holding could operate still further, and the holdings would become still smaller, whilst the State would lose its revenue.

We give these criticisms, not with a wish to depreciate Professor Kale's work, but rather because we hold it to be of the highest national importance that a book which will be deservedly widely read, and is likely to be regarded by all educated Indians for many years to come as the standard book on the economics of their country, should be scrupulously accurate in its statements. This appears to be of especial importance in regard to the type of subjects to which we have referred, which might so easily become burning political questions. If political parties base their policy on a false conception of facts, it will indeed go ill with self-government in India. Professor Kale has, indeed. provided a gigantic task for the whole body of economists He has presented us with clear in India to undertake. and concise statements of the current theories and accepted opinions on almost every question of economic interest. To prove his statements right or wrong, to assess exact degree of truth in them, and to find out the whole truth regarding the various subjects, taken chapter by chapter, and section by section, might well be the task of all economists in India for the next ten years or more. We look forward with pleasurable anticipation to successive editions of Professor Kale's work, revised from time to time in the light of the results of these researches.

H. S. JEVONS

Town Planning Towards City Development. A Report to the Durbar of Indore, by PATRICK GEDDES. Part I. Indore: Holkar State Press. 1918. pp. xvii, 203, and 8 folded plans.

During the past four years Professor Geddes has reported on a score of Indian cities, and he came to the study of Indore with a ripe and unequalled experience. His bold

ideas and the freedom with which he crosses swords with the protagonists of the imperialist-mechanical age wherever he finds them have led hasty observers to regard his conceptions as visionary ideals and his proposals as unpractical. This report on Indore is the best answer to such criticisms, for here we find the ideals of life intimately interwoven with the practical suggestions for achieving a new order of life in which these ideals may be realized and in which economy of expenditure is most carefully studied. Some nine or ten months were occupied in the study of the city and in writing the report of which this is the first of the two volumes; and it is not surprising, therefore, that the report exhibits an intimate knowledge detail of the existing city rarely attained by a town-planner himself.

The present volume contains 42 chapters grouped in 12 parts. The first part is a preliminary survey and interpretation of the City of Indore, mainly historical. The second part deals with Public Health, the third with new industries and the new Industrial Town. Then come chapters devoted to Water Supplies and Drainage, followed by a part relating to Suburban extensions, Housing and Sanitation. The fifth part deals with the designing of parks and gardens the purification and bunding of the river, and with proposed educational and scientific buildings.

The next part takes up the improvement of the business quarters of the City—the Corn Market and the crowded bazaars. Other parts deal with school planning, with cleansing and drainage, and with the enlargement of the railway station and its relation to the streets of the neighborhood.

This summary of the parts gives but a poor idea of the very wide range of the subjects which are treated and which are enumerated in detail in the twelve pages of the Contents. The object and scope of the Report cannot be better stated than in the Professor's own words as written in the introduction to this volume, from which we take the following quotations:—

"A City Report naturally opens with a Plan of the existing City as its frontispiece. It proposes its Improvements and Extension, with detailed plans as far as may be. It then combines these, as clearly and fully as scale, etc., make practicable, upon a concluding City Plan.

"The first Plan shows the City as it is; the following ones as locally improving; and the last as improved and extended.

"But this is too bare and crude an indication of any Report and Plans; and a fuller statement is necessary; and this the more since the [printed] plans are but a pale reduction of the large and fully colored originals.

"As the physician must make a diagnosis of the patient's case before prescribing treatment, so with the planner for the city. He looks closely into the city as it is, and enquires into how it has grown, and suffered. And as the physician associates the patient with his own cure, so must the planner appeal to the citizen. Hence the Indore reader should go round and look at the City for himself; and with its Plan for partial guide, he may check, and amplify, the diagnosis; and perhaps accelerate the treatment.

"As the preliminary Survey and Interpretation proceeds, the City and its Quarters, and how they have developed and deteriorated, grow clear; and the making of Improvements, the planning of Extensions, will be seen as no mere application of a standard remedy or arbitrary prescription. For our Improvements are primarily those of urgent local hygiene, and of conservative surgery; and our Extensions must be on these lines of growth on which the City presses or which its surroundings best admit." . . .

"Successful treatment must be general and constitutional for though every disease has many outcomes to be relieved, health is a Unity. Hence the main concept, always before the mind, is the City itself; the City Past, Present and Possible and thus as a vast and complex life, the tree of which we, and all our generation, are but a season's leaves; yet which has to continue its growth, and to bud for next season."

Turning now to examine some of the Chapters, we find under the title "Indore from its early beginnings", matter of striking interest and importance to all students of history and economics, who ought to know more than they generally do of the historical evolution of the cities, and of the phases through which they have passed, in response to the general political and economic changes affecting the whole country.

Professor Geddes soon obtained convincing evidence that the portion of the City known as Juni Indore is indeed

its historic centre. "This is in itself a minor labyrinth, and of some intricacy" we read, "yet it soon yields to a study of town and plan together. First, and still central, we have the characteristic type of Brahmin Street which is so common throughout India, best developed in the South as the Agraharam Street. Here, as wherever possible, it runs North and South, with its present temples at one end, and what remains of its Bathing Ghats at the other. A street runs on each side parallel to this, a little distance behind its houses, for humbler castes and Here in fact is "the Three Streets Plan" secular uses. so familiar to city students in the West, surviving plainly. for instance, in my own University City and Ecclesiastical Capital of St. Andrews, or again of the corresponding Abbey City of the old Canon-Gait, the Westminster of Edinburgh: in short a type decipherable in many cities, between these geographical extremes of India and Scotland. The old main street now bears the distinctive name of Shanigali, from the Shani Temple at its head: but its Saturnine deity seems to indicate that this was not the original Temple, or at any rate not the main one."

It is hardly possible to summarize the historical survey; and we think it is of sufficient general interest to warrant some further extensive quotations.

"Looking now at this whole geographical situation, we see how admirable is the location it afforded for this peaceful little religious centre. For a cult so fundamentally riverine and pastoral as Brahminism no better situation could be desired; in which the bathing ritual of sunrise and sunset could be followed at their best, in which the sconomic need of pasture was assured by permanent rivers, and with these protecting the little religious town, which was thus in isolation from the great stream of secular affairs, and yet conveniently near the great road between Bombay and Agra.

"But how did this little religious centre arise? Presumably, besides its natural advantages, as a stage, and an attractive resting-point, upon the route of yogis and pilgrims between the holy city of Ujjain and the doubly sacred river Narbudda.

"The early unimportance of Indore in secular history a point at first of perplexity in view of its military im-

portance in recent centuries—is thus explained. And though political greatness and material wealth have been wanting in its earlier ages, it is much to find the origin of our city as a centre of the plain living and high thinking of holy men of old." . . .

"Returning to the History of the Town we have still to find the seat of its temporal authority. This remains obvious in the vast Palace, or rather rambling growth of mansions, of the old Brahmin family of Rao. Zamindars of Indore since the Mohammedan age, and doubtless earlier, of which the head is to this day sometimes spoken of in his neighborhood as the 'Raja of Juni Indore'. wealth and influence of this family was not merely applied to domestic uses; for to the enlightened policy of one or more of its head, we owe the suburb of Byasphala on the west and also the Raoji Bazar on the east, both established for new immigrations of Brahmins thus attracted to Juni Indore,. In this way arose the present, and still compact. Brahmin town, with its menials forming their Mohallas at various sites around, as notably at Katkatpura and Kumawatpura, (also probably to the West and probably some little way N. W. and N. E. also).

"It is interesting to note the clear-cut stratification of castes which the social Section of such a town presents. Thus, starting from the central street of Shanigali, and proceeding eastward, we leave the old original Brhmins, we pass through the Raoji Bazar of old immigrant Brahmins, and thence come to the Bhat Mohalla, a group of bardic origins, claiming to be Brahmins of later date, but of less fully recognised caste-rank. A little further east again, we have the cultivators in Malipura, and east of these again, the vegetable sellers of the almost rural Murai Mohalla.

"Only after all or most of this area was essentially settled, do we find indications of the coming of the Moslems. The positions, of their Mosques in all three cases, (south-east, south-west and north) are outside the old town. As already mentioned, the original temples seem to have been destroyed, as old stones suggest, and as the domestic, not monumental, architecture of the present ones indicates; but otherwise the town has substantially kept (or has recovered?) its old character. The Mohammedan Rule was here of its more tolerant variety, even the stern Aurangzeb

sending presents to its Zemindars, which are still family heirlooms. Its military defences however, became fairly considerable, doubtless as the Crescent waned, as is indicated by the large remaining rampart base, the black basalt wall running straight along the south bank of the river and pushing this northward. After this time would necessarily arise new Ghats, notably surviving, with their inconspicuous Temples, at the angle where the River turns north. . . . Since the Mohammedan time the basalt Rampart has been largely used as a quarry of building materials, and thus the full tracing of its course cannot here be gone into".

There are many more pages of historical matter, but we have not space for further quotations. In the chapters immediately following, the most notable is that devoted to The author has much to criticise, not only Public Health. in the existing insanitary slums of Indian cities, but also in the well-meant attempts to apply the European sanitary systems of the nineteenth century to city improvements in He points out how the advance of bacteriological knowledge and discoveries of disease-bearers like the mosquitoes and the flea involve a totally new sanitary practice. This we might call "naturalistic" (though he does not use The system involves the study of the plant and animal life with a view to fitting the human being into a life cycle (whereby all the waste products of human life which are so deleterious are disposed of by keeping domestic animals and by the natural action of the sun and soil bacteria. Thus plague amongst mill-workers he traces to grain and crumbs of food scattered by the workers in the mill or its compound and in their chawls. The remedy is to have the floor of every mill carefully swept up after the meal time and for the workers to be compelled, if necessary, "(1) to set up a pigeon-cote, so as to have any remaining crumbs eaten up forthwith; and (2) to keep cats, which would at night soon clear out any lingering rats altogether." The matter is further developed in Chapter XII where a simple plan of sanitary gardens for avoiding the enormous capital outlay needed by a sewer system is worked out.

The most important parts of the remaining chapters are those which deal more directly with the Principles of Town

Planning and their application to various districts of Indore. Chapter VI is of especial interest as dealing with the New Industrial Town at Indore. There are already three cotton mills and a brush factory and flour mill situated at the north-east side of the town. Beyond this there is a wide stretch of flat open land. All this has been planned by Professor Geddes as a large industrial subarb with sites for new mills and factories. A plan of railway sidings has been laid down in such a manner that nearly all the proposed factory sites can be served with railway sidings. On the other side of the area reserved for factory sites is a large area which is to be laid out specially for workmen's dwellings on garden city plan, the details of which are shown in a large plan. This scheme for the industrial extension of the city and for providing decent homes for a very large population of mill-workers is not only extremely interesting, but is also of first-rate importance as an example of what may be done in other Indian cities.

We would like to draw attention, if space permitted, to the proposed re-planning and control of the corn market, to the discussion of education and the location of school and college buildings, and many other matters of general interest in this comprehensive volume. We trust that the Indore State will have had a sufficient number of copies printed to put the report into wide circulation as it will be of the greatest interest to all students of civic and municipal life in all parts of India. We look forward with interest to the appearance of the second volume.

GOVERNMENT PUBLICATIONS

Report of the Indian Industrial Commission, 1916-18. Calcutta: Superintendent of Government Printing, India. 1918. 8vo. pp. xx, 855, xviii. Price Re. 1 or 1s. 6d.

The long expected Report of the Industrial Commission is a comprehensive document dealing with the causes of the industrial backwardness of India, a review of its industrial resources in raw materials and power, and proposals for measures to be taken by Government for stimulating and assisting the growth of industries in India. First we find the rural conditions of India and the changes introduced by railways briefly discussed; then the various industrial

districts and existing large-scale industries each receive two or three pages of discussion which will be most valuable to The following chapter describes the raw economic students. materials available—agricultural produce, minerals, and the products of forests and fisheries. We next find discussions of the industrial deficiencies of India and of the relation of industries to agriculture. Chapter VI considers all the various sources of power and advocates a hydrographic survey being undertaken by Government. Chapter VII treats, perhaps rather too briefly, the share taken by Indians hitherto in the industrial development of the country; and the following chapter relates the industrial policy of Government in recent years.

The foregoing is all more or less of an introductory character; but in the next few chapters we get to the details of the relations between Government and industrial In Chapters IX and X we have discussion of the existing organization of scientific and technical services and provision for research work, and for industrial and technical education. The system of commercial and industrial intelligence is then criticized and some proposals are made; and then we come to the Government purchase of The advantage of centralising the purchase of. stores. stores in India is fully recognized and it is suggested that a general purchasing department under a Controller General of Stores with his head-quarters at Calcutta be established. It is proposed that all indents for stores required by provincial officers should come through the local Director of Supplies, who would first examine the indents, and arrange for local purchase and inspection where this is possible. At present the inspection of stores at the India Office is a great convenience to the Public Works Department in India and is an inducement to the purchasing of stores There is no reason why efficient inspection by experts of purchases made in India should not be organized as recommended by the Commission.

We have next a short chapter on land acquisition, and a useful proposal that under certain circumstances Government should compulsorily acquire land on behalf of an industrial concern. Chapter XIV on the technical assistance to industries by Government is of exceptional interest. Here we find a division of industries into: (1) cottage industries,

(2) small organized industries. (8) large organized industries. Cottage industries can be successfully assisted by small travelling demonstration schools which go about from village to village where the industries flourish bringing to the notice of weavers, metal workers, and the like, improvements looms and patterns, or in tools. The success of the Japanese in organizing the marketing of products of cottage The large organized industries noted. industries is initiated only by big capitalists who employ their own technical experts, and Government assistance is only in supplying the preliminary information necessary to decide the location of the works, sources of raw materials. and so forth. The industrial future of the country will depend, however. more upon the successful establishment of numerous small industrial undertakings which require the managing capacity of young Indians with only a few years' experience. If successfully managed, many of these will ultimately grow into large undertakings; and we are glad that the Commission has recognized that it is especially these undertakings, as well as the cottage industries, which need the fostering care of the provincial government through the provincial Director of Industries whom they propose shall have an adequate technical staff.

In Chapter XV we have observations on many subjects, such as the prevention of adulteration, prospecting and mining rules. electrical regulations, patents, and the registration of trade marks and the partnerships. The next Chapter dealing with the welfare of the factory labor, is of the greatest importance and we are glad that the Commission has recommended that close attention is needed to effect a rise in the standard of comfort and an improvement of public health in the industrial centres, and that these ends can be attained only by education, improved housing and a general policy of betterment. improved housing, and sanitation, they recommend attention to facilities for healthy amusements, shorter hours of work and the promotion of co-operative societies for the sale of articles to factory operatives. The conditions of Bombay are so exceptional that several pages are devoted to propose special measures for the industrial classes of this city.

The next two Chapters deal with cottage industries and then we have a rather too brief consideration of railway and water transport in its relation to industries. The next subject is industrial finance, wherein the sources of capital for industrial enterprises are reviewed and the nature of the financial assistance to be given by Government is considered. In spite of the fact that the Tata Industrial Bank was started without Government assistance, the Commission is of opinion that industrial banks are needed that will work with the help of the Government industrial experts whose appointment is proposed. Such banks would be financially sound, meantime it is proposed that a Government guarantee be given to loans made by the existing banks. Finally, the principal recommendations of the Commission are gathered into two chapters on the provincial departments of industries and a proposed Imperial Department of Industries. In each province they would have a Director of Industries assisted by a Board of Industries; and in the larger provinces there would be a Deputy Director and a staff of industrial engineers. chemists and other specialists and teachers. To ensure that the Departments of Industries, Agriculture, and Co-operative Credit work in harmony it is proposed that they should be under the same member of the Provincial Executive Council. The Imperial Department of Industries is needed for the direction and co-ordination of the general industrial policy of the country. Many existing Departments of the Government of India would be transferred to this new industrial department, classified as follows:-

- GROUP I.—Geology and Minerals. Salt. Explosives and Petroleum. The Chemical Service and chemical research. Government factories for research or demonstration.
- GROUP II.—Stationery and Printing. Commercial and industrial intelligence. Stores. Factories

 Act. The general encouragement of industries. Technical and industrial education.
- GROUP III.—Inventions and Designs. Steam boilers
 Acts. Electricity. Ordnance Factories.
 Inspection of ordnance manufactures.

It is proposed to establish an Imperial Industrial Service which will be recruited from specially trained men in India and with experts from abroad. The members of the Imperial Service will be lent to the Provincial Industrial Departments in accordance with their requirements as is done with the educational, agricultural and other services.

The cost of the scheme is worked out in some detail on a pre-war basis and the recurring cost of the proposals is estimated at Rs. 86,00,000, whilst the total capital expenditure extended over seven years is put at Rs. 2,16,00,000. This includes provision of all the necessary pioneer and demonstration factories besides hydrographic and other surveys and the building of technological institutes, industrial schools and engineering colleges.

The recommendations of the Commission have evidently been considered with very great care and with a real understanding of the industrial conditions of the country. We have no quarrel with the idea of an Imperial Industrial Service, because, although we believe in the greatest freedom of local initiative being allowed to the provinces, it obvious that highly specialized experts, who must be paid high salaries if they are to be of any use, would be an impossible luxury for most of the provinces by themselves. Their advice would be needed only for a month or two in each year, the men of more generalized training and special business experience being employed permanently in each province to do the actual work of promoting and assisting industrial undertakings. The danger of centralization must certainly be avoided; and for this purpose the Imperial Department could only have the duty of advising the Local Governments and assisting with information, not of controlling their industrial activities.

The Report of the Commission is followed by a Note from the pen of the Hon'ble Pandit Madan Mohan Malaviva giving reasons for differing from the other members of the Commission as regards several of their conclusions and recommendations. He commences with a historical account of Indian industries noting the effect of the early development of the foreign trade with European countries and of the English industrial revolution. He traces the effects of the growth of railways and considers the Government industrial policy in recent After dealing vears. with the question of industrial education he takes banking and finally the organization of the proposed scientific and technical services. He calls special attention to a note submitted by Mr. Puran Singh of the Dehra Dun Forest Research Institute which raises a very important question. The Commission are in favor of scientific research work

which has an industrial objective being carried out by officers under the administrative control of the Government. such control being centralized in the administrative head of the Department. There is, we feel, a great danger in this direction, because its efficiency too far in would depend entirely upon the wisdom of the administrative head. Entire lack of direction and control undoubtedly leads to much duplication of work and dissipation energy; but too close a control might kill the true spirit of scientific enquiry and would be particularly galling and originality, who might discouraging to a man of frequently prevented from following up new lines of work which he considered promising. The only solution we can offer is that there should be some men working under control. and others working with a great amount of freedom in scientific institutes connected with universities or actually in research rooms of scientific departments of the University. Promotion to posts enjoying such freedom would be given as the result of approved ability and originality. We feel that it is impossible to over-estimate the importance of linking up the research work on the one hand with the universities and on the other hand with the centres of industries; and transfers of officers between special centres so that each should have both industrial and university experience should be the rule.

We hope that the labors of this Commission will bear greater fruits than those of many previous Commissions. Our own theory is that every Commission of enquiry should be required to carry out the measures of reform which it proposes. This would ensure its proposals being practicable, and it would also ensure something practical being done to realize the objects for which the Commission was appointed, making full use of the knowledge acquired by the Commission for making its report. The present is the time for action, whilst India is still to a great extent protected from foreign competition by the effects of the War.

H. S. JEVONS

Proceedings of the Board of Agriculture in India held at Poona on the 10th December, 1917, with Appendices.

Calcutta: Superintendent Government Printing. 1918

pp. 185. Price As. 18 or 1s. 8d.

Among the many subjects that came up for discussion before the Board not a few were on matters of economic

organisation which we are glad to notice in this short The question of the size and distribution of land-holdings and their consolidation into economic holdthe Hon'ble ings excited a good deal of interest and Mr. Keatinge, Director of Agriculture, Bombay, Professor H. Stanley Jevons of Allahabad, the Hon'ble Mr. Parshotam Das Thakurdas, Hon'ble Mr. Godbole, and Doctor Harold Mann and others took part in the discussion. As a result the Board resolved that Provincial Governments be recommended to make a close investigation of the question in consultation with the registrars of co-operative societies with a view to taking such legislative action as may be necessary. The question of the value of phosphatic manures and the manufacture of superphosphates on a large scale in India seems to us to be of vital importance and we are glad that the Board's attention has been directed to it. The importance of elementary agricultural education cannot be overrated for a country like India, and the Board's discussion of the report of the Simla Conference embodying a scheme for the establishment of rural schools on the model of the Loni school, near Poona, is full of interest. Board realises the value of rural education, but recommends that the education Department should be responsible and seek the co-operation of the Agricultural Department in the matter. The view was emphasized that research and demonstrations are the real work of the Agricultural Department. interesting item of the discussions was the review of the present position and prospects of the sugarcane industry in the various provinces of India, both from the agricultural and manufacturing standpoints. It was suggested that a Bureau of Information be formed for pushing and improving this industry.

We find a good deal that is stimulating in these proceedings and we have no doubt students of agricultural economics will find therein suggestions for further inquiries, and much substance for reflection. The Board was lucky in securing as its chairman His Excellency Lord Willingdon, Governor of Bombay, whose interest in the promotion of agriculture and personal enterprise in farming in this country are well known.

BALANCE OF THE GOLD STANDARD RESERVE IN INDIA AND IN ENGLAND ON THE LAST DAY OF EACH MONTH

Held in the following form		81st May 1918	80th June 1918	81st July 1 91 8
1.	Gold in India	£ Nil	£ Nil	£ Nil
2.	Cash placed by Sec. of State at short notice	6,000,011	6,000,075	6,000,008
8.	British and Colonial securities (value as on 81st March 1918)	24,920,158	21,778,058	19,818,604
4.	Securities since pur- chased (at cost price)	8,641,548	6,918,687	8,918,485
	Total	84,561, 707	84,691,820	84,787,047

BALANCES HELD IN CASH IN THE GOVERNMENT CIVIL TREASURIES AND AT CREDIT OF GOVERNMENT IN THE PRESIDENCY BANKS AND THEIR BRANCHES—BANK RATES—EXCHANGE—SILVER, ETC.

	Year.		81st May	80th June	81st July
			Rs.	Rs.	Rs.
1916	•••	•••	14,46,85,000	18,22,74,000	20,41,51,000
1917	•••		82,48,70,000	89,56,98,000	85,96,25,000
1918	•••	•••	19,95,98,000	28,21,87,000	16,20,54,000
			81st	80th	31st
Bank Re	Rates.		May 1918	June 1918	July 1918
			per cent	per cent	per cent
Bank of	Bengal		5	5	5
Do.	Bombay	•••	6	6	6
Do.	Madras	١	7	7	7
Do.	England	• • • •	5	5	5
Exchang			s. d .	s. d.	s. d.
On Den			1 6 1 16	1 $6\frac{1}{16}$	1 6-1
Telegra	phic Transf er	s	1 $5\frac{81}{82}$	1 $5\frac{81}{89}$	1 5 81 .
8 Mont	hs'	•••	1 6 7/16	1 $6\frac{7}{16}$	$1 6\frac{7}{16}$
6 Mont	hs'		$1 + 6\frac{8}{4}$	1 $6\frac{8}{4}$	1 6-8
overnme.	nt Paper (8½	p.c.)	64-4 to 64-8	64-8 to 64-12	67-8 to 67-12
	in London		$48\frac{7}{8}d$	$48\frac{7}{4}d$	48 18 d

ABSTRACTS OF THE ACCOUNTS OF THE DEPARTMENT OF ISSUE OF PAPER CURRENCY, 1918

			
-	81st May 1918	80th June 1918	81st July 1918
	Rs.	Rs.	Rs.
Total amount of notes in circulation ¹	1,11,52;92,881	1,14,78;68,769	1,21,40;89,089
Deduct ²	Nil	Nil	Nil
RESERVE			
Coin and Bullion			
In India:—			
Silver coin	5,14;88,650	5,65;54,695	8,02;33,720
Gold coin and Bullion	19,12;08,906	21,08;61,645	20,20;81,577
Silver Bullion under coinage	75;88,514	2,78;08,731	10,89;97,854
In England: —			
Gold coin and bullion	44;92,770	44;92,770	12;35,865
Securities (at purchase price):—			
Held in India	9,99;99,946	9,99;99,946	9,99;99,946
Held in England	64,15;80,622	68,89;60,062	72,65;34,577
Total Reserve	1,11,54;28,831	1,14,82;91,759	1,21,40;88,089
Deduct 8	1;86,500	4;28,000	Nil
Net Total Reserve	1,11,52;92,881	1,14,78;68,759	1,21,40;88,089

¹ Figures to the left of the semi-colon indicate the number of lakks.

² Deduct—withdrawn from circulation by Foreign circles, and in course of remittance to circles of Issue.

³ Deduct-Amount due on Bills drawn by one circle on anoth

PRINCIPAL CONTENTS

OF

FOREIGN JOURNALS

ECONOMIC JOURNAL

(Quarterly Journal of the Royal Economic Society. London: Macmillan and Co., Ltd.)

MARCH, 1918

I. ARTICLES—

Equal Pay for Equal Work, by MILLICENT GARRETT FAWCETT.

The Wool rade in War Time, by Dorothy Zimmern. Income Tax on Wages, by Quarterly Assessment, by G. R. CARTER and H. W. HOUGHTON.

Currency and Gold: Now and After the War, Ŏ. T. FALK.

The Bank Restriction of 1797, by R. G. HAWTREY.

II. NOTES—

Reports on National Expenditure—Absolute rice and

Index Numbers of Price.

Book-Reviews: — War Finance, by J. S. NICHOLSON. Value of Money, by B. M. ANDERSON.

THE JOURNAL OF POLITICAL ECONOMY

(Published monthly from October to July by the University of Chicago, U.S.A.)

DECEMBER, 1917

The Making of Rates for Workmen's Compensation Insurance, by E. H. DOWNEY.

Social Value and the Theory of Money, by WALTER STEWART. The Surplus in Commercial Banking, by HAROLD G. MOULTON. Extent of rofit-Sharing in the United States; Its Bearing

on Industrial Unrest, by Boris Emmet.

Interstate Migration of Negro Population, by Wm. O.

Scroggs.

NOTES—Loans and Securities Prices—Control of Foreign Exchange—Growth of Fedral Reserve System. Book-Review:—Ely's Conservation and Economic Theory.

JANUARY, 1918

Economics and Modern Psychology. I, by J. M. CLARK.
The Price System and Social Policy, by WALTON H. HAMILTON.
The Functions and Problems of Economic Theory, by
C. E. AYRES.

NOTES—Government Control of Railroads—Earnings of Federal Reserve Banks—Discount Rates—Reserve Branches.

Book-Review:—Outlines of Agricultural Economics, by E. G. Nourse.

FEBRUARY, 1918

Export Trade Problems and an American Foreign Trade Policy, by WILLIAM NOTZ.

The War's Effects on English Trade Unions, by ORDWAY TEAD.

Economics and Modern Psychology. II, by J. M. CLARK. The Economic Function of the Common Law, by HOMER HOYT.

NOTES—Federal Reserve Report—The Farm-Loan Situation— Foreign Exchange Regulations—Priorities in Capital Issue—The War Finance Corporation.

Book-Review: - Modern Currency Reforms, by E. W. KEMMERER.

MARCH, 1918

The Place of Value Theory in Economics. I., by WALTON H. HAMILTON.

The Waiting Period in American Compensation Acts, by I. M. RUBINOW.

Mechanical Evolution and Changing Labour Types, by CHARLES REITELL.

The Problem of the Transcontinental Rate Structure, by PAUL D. CONVERSE.

NOTES—Emergency Financial Measures of Japan—Government Control of Transportation—New Plan of Interim War Financing—A" Survey" of Sugar.

APRIL, 1918

The Chicago Milk Inquiry, by C. S. Duncan.

Nassau W. Senior, British Economist, in the Light of Recent

Researches. I, by S. LEON LEVY.

Political Economy and Social Process, by CHARLES H. COOLEY.

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- The Place of Value Theory in Economics. II, by WALTON H. HAMILTON.
- NOTES-The Acceptance Situation-War Finance Corporation-The Third Liberty Loan-Government Control of Railroads.
- Book-Review: Railroad Valuation and Rates, by MARK WYMOND.

MAY, 1918

- The War Labor Program and Its Administration, by L. C. MARSHALL.
- The War Risk Insurance Act, by PAUL H. DOUGLAS.
- Commercial Banking and Capital Formation. I, H. G. MOULTON. by
- Nassau W. Senior, British Economist, in the Light of Recent Researches. 11, by S. LEON LEVY.
- NOTES—The War Finance Corporation—The Third Liberty Loan Act—Silver for Export.

THE AMERICAN ECONOMIC REVIEW

(Published Quarterly by the American Economic Association, Secretary Prof. A. A. Young, Ithaca, N. Y.)

DECEMBER, 1917

The Law of Balanced Return, by ARTHUR S. DEWING.

The Basis of War-Time Collectivism, by J. M. CLARK. The War Revenue Act of 1917, by Roy G. BLAKEY.

Canadian War Finance, by O. D. SKELTON.

Methods of Providing for Expenses of New Business by Life Insurance Companies, by H. L. RIETZ.

MARCH, 1918

- The State Market Commission of California, by CARL C. PLEHN.
- Price Maintenance, by H. R. TOSDAL.
- The Overdraft Evil as Illustrated by Conditions in Iowa Banks, by NATHANIEL R. WHITNEY.
- Government Control of the Wheat Trade in the United States, by WILLIAM M. DUFFUS.
- Mandeville in the Twentieth Century, by SIMON N. PATTEN.

QUARTERLY JOURNAL OF ECONOMICS

(Published by the Harvard University, Cambridge, Msss.)

FEBRUARY, 1918

The Fertilizer Needs of the United States, by H. J. WHEELER. The Government and the News-Print Paper Manufacturers, by E. O. MERCHANT.

Our Large Change: The Denominations of the Currency, by EUGENE E. AGGER.

The Founders, The Molders, and the Molding Machine, by MARGARET LOOMIS STECKER.

Some Aspects of French Railway War Finance, by STANLEY E. HOWARD.

Labor Problems in the United States during the War, by LOUIS B. WEHLE.

NOTES—The Supply Price of Labor—International Freights and Prices.

Also Review of KITSON'S Trade Fallacies and KITSON'S

A Fraudulent Standard.

MAY, 1918

How to Promote Foreign Trade, by F. W. TAUSSIG.
Recent Railroad Failures and Reorganizations, by STUART

DAGGETT.

·· A Study of the Incidence of an Increment Value Land Tax, by CARL C. PLEHN.

Fixed Costs and Market Price, by Spurgeon Bell.

The Operation of the Massachusetts Income Tax, by CHARLES J. BULLOCK.

Also Review of The Town Labourer, by J. L. HAMMOND.

PRINCIPAL RECENT ACQUISITIONS

IN THE

ECONOMICS SECTION OF THE

ALLAHABAD UNIVERSITY LIBRARY

The Making of Modern England. By GILBERT SLATER London Constable & Co. 1913.

A useful general economic history written from the progressive thinker's point of view. The author's aim has been "to set out in language as simple and clear as I can command those facts with regard to the recent history of our country which it is most important for English men and women to know"

An Economic History of Russia. Vols. I & II. By JAMES MAVOR London J. M. Dent & Sons. 1914.

A monumental work, likely to be the standard work on this subject for many years.

History of the Grain Trade in France. 1400-1710. By A.P. USHER. Harvard Univ. Press. 1918.

A careful and interesting study containing much matter not elsewhere accessible.

Economic History of Agriculture in Minnesota. By E. V. D. Robinson. Bulletin of the Univ. of Minnesota. 1915.

A very detailed monograph which is important as indicating lines of useful work for India and other countries.

The Marketing of Farm Products. By L. D. H. WELD. N. Y: Macmillan Co. 1916.

Explains American conditions of marketing in manner useful to students of economics and agriculture.

Agricultural Tenancies. By C. E. CURTIS AND R. A. GORDON. London Crosby Lockwood & Son. 1910.

Contains the important English Tenancy Legislation of 1908.

Estate Management. By C. E. CURTIS Lon.: Horace Cox. 1911.

A useful practical handbook which though applying to English conditions is very suggestive of what should be done in India.

Large and Small Holdings. By H. LEVY. Cambridge Univ. Press. 1911.

First part of the book is a historical account of rural economic conditions leading to a thorough and scientific discussion of agricultural organization.

English Farming Past and Present. By R. E. PROTHERO. Lond. Longmans Green & Co. 1912.

This would be more correctly denoted a History of Agriculture in England.

The Village Laborer (1760-1832). By J. L. HAMMOND AND BARBARA HAMMOND. Lon.: Longmans Green & Co. 1913.

A reliable historical account of the condition of agricultural laborers in England. Also deals with Enclosures and Poor Law.

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BOOKS RECEIVED

- Journal of the Indian Economic Society for March 1918.

 Bombay: 1918. (Published by Indian Economic Society)

 pp. 68. Price Rs. 5. per annum.
- Excess Profits Tax Manual. National Bank of Commerce. New York: 1918. pp. 64.
- Report on the Production and Consumption of Coal in India. Tenth Issue. Superintendent Government Printing. Calcutta: 1918. pp. 35. Price As. 12.
- Statistical Abstract of the Baroda State. 1906-07 to 1915-16. Department of Commerce and Industry. Baroda: 1918. pp. iv, 175. Price As. 9.
- Report on Co-operative Societies in Mysore, 1916-17.
 Government Press. Banglore: 1918. pp. 57.
- Proceedings of the United Provinces Co-operative Conference— Ninth Session, December 1917—Lucknow. Superintendent Government Press. Allahabad: 1918. pp. 42,16. Price As. 12. or 1s.
- Second Annual Report (1917) of the Indian Economic Society Bombay. Servants of India Society's Home. Bombay: 1918. pp. 22.
- Prospects of Developing Iron and Steel Industry in Gwaliar State. By Alakh Dhari. Alijah Durbar Press. Gwaliar: 1918. pp. iv, 48, with appendices.
- The War Revenue Act. By Edwin R. A. Seligman. Columbia University. New York: 1918. pp. 37.
- Loans Versus Taxes in War Finance. By Edwin R. A. Seligman. Columbia University. New York: 1918. pp. 31.

INDIAN JOURNAL OF ECONOMICS

Vol. II - Part 4

PAPERS READ AT THE FIRST CONFERENCE OF THE INDIAN ECONOMIC ASSOCIATION

ADDRESS OF WELCOME BY THE CHAIRMAN PROFESSOR PERCY ANSTEY PRINCIPAL, SYDENHAM COLLEGE OF COMMERCE, BOMBAY

GENTLEMEN,

Permit me to welcome you very cordially to Bombay. The functions of our Conference are twofold. In the first place we have met in order to listen to a number of papers that deal with different aspects of economic inquiry and to take part in the subsequent discussions. In the second place we have to set aside at least one afternoon in order definitely to settle the constitution of the Indian Economic Association. That body, as you are aware, is barely one year old, and has so far existed in a somewhat inchoate state. There was among the economists who twelve months ago at the invitation of Professor Hamilton, assembled at Calcutta a general desire to make gatherings of this kind an annual affair. For that and other allied

purposes they resolved to form a national body which should be genuinely representative of workers in the field of economics throughout India. A provisional Committee was elected, two honorary secretaries were appointed, and it was agreed that the next Conference should be held at Bombay. Owing to lack of time, however, little more was accomplished. On the present occasion, therefore, we must make it our primary concern to place the Association on a sound and business-like basis.

An all-India Economic Conference requires. The physical scientists and take it. no apology. the mathematicians have lately organized periodic congresses: indeed both are going to meet in this very city next month with great éclat. It is only natural desire to follow suit: that economists should more so since economic questions probably excite more general public interest nowadays than any others. Hitherto, however, a difficulty has stood in our way. For until quite recently there was scarcely to found in India a sufficiently large number of professional economists to constitute the nucleus of a national conference. At the university colleges political economy was a minor subject, taught by gentlemen who were very able, no doubt, but whose chief interest was history, philosophy, or political science. But within the last few years things have changed. In Calcutta, Madras, Bombay, Allahabad, and other centres, we now have distinguished scholars whose lives are devoted first and foremost to the continuous study of economic problems; and we also have an increasing number of men in the Civil Service, in business, and in other vocations who, while they do not make all economic knowledge their province, take up one special line of investigation and speak on that with authority.

There was a second obstacle. Even if there had been in this country a body of economists in the strict sense of the term, it is doubtful whether their meetings would in the past have carried any appreciable weight: for the administration was exclusively in the hands of a Civil Service, every member of which was assumed to be competent, on the strength of high initial qualifications of a general character, to master any subject he might in turn be called upon to deal with. In England there has, of course, never been any parallel to that. If anything, the pronouncements of economists have been listened to with excessive deference; and though appeals to "the Laws of Political Economy" are no longer allowed to close all discussion, as was once mistakenly the practice, the genuine value of the advice of the economic expert is recognized perhaps more widely than ever, and not the less so because the appreciation is more discerning. The views of men like Marshall, Sir William Ashley, Professors Bowley exercise immense influence; every effort is made to secure their active assistance on committees and commissions—witness the recent inquiry into the cost of living; and they are even put directly at the head of departments such as the Board of Trade, where at this very moment Professors Percy Ashley, Clapham, and Flux preside respectively over Industry, Manufactures and Statistics. It may be some time before we get as far as that in India. But here too the legitimate influence of the economist is bound to increase. My reason for thinking so is that the world-wide process of democratization which is being hastened on in Europe at an ever accelerated rate. is manifesting itself in India also.

Now, an essential feature of democratic rule is regard for the opinion of the expert. The typical

autocrat, whether he be a single individual or whether the expression be applied to a bureaucracy, manages most things without seeking advice at all, and if counsel is asked for, there is no obligation to follow But a democratic form of Government consists of popular representatives who are chosen not because they are supposed to be endowed with special capacities, but because they stand for a certain policy. are elected not in order to do things themselves but in order to see that others do them. they are bound, after choosing their specialists, to be guided by them. Or if they are not thus guided they act at their own risk, with the prospect of inshould curring the indignation of the electorate. disastrous consequences ensue. All this is understood readily enough when the advice in question is that of an engineer, a sanitary officer, or a lawyer. the advice is that of an economist it is sometimes grasped less clearly. And yet the results of playing tricks with the currency, of imposing a bad system of taxation, or of embarking on an illusive trade policy may prove far more ruinous to the nation than building a few unsatisfactory types of battleship, wasting money on some mistaken health measure, or sustaining a defeat in the law-courts.

To be sure, the knowledge of an expert differs from that of a layman not in kind but in degree. Nevertheless the difference in value between the considered judgment of the man who devotes all his life and thought to one group of questions and that of the man in the street may be so great as to preclude all comparison. And, Gentlemen, if the views of a single person who has made himself a specialist in one sphere may reasonably be presumed to outweigh those of the amateur, how much more weight onght to be attached to the collective voice of econo-

mists as expressed at a gathering like the present.

We make no claim to the infallibility of a pope—nor yet of a church council. Economists themselves differ from one another; but they do not differ in a chaotic, unarguable, unbridgeable way—even when they handle so contentious—because so largely political—a question as that of fiscal policy. To the extent that they remain loyal to the unifying spirit of true science, they can always find a common ground of mutual comprehension; and that, gentlemen, will, I trust, be the spirit of our ensuing deliberations at this present Conference.

PROSPECTUS OF THE INDIAN ECONOMIC ASSOCIATION

The need has long been felt of an institution like the Indian Economic Association which should afford opportunities of discussion and co-operation to those who are interested in the economic problems of India, which could promote the study of the economic conditions of our country and which could disseminate useful economic information. With these objects the first general meeting of economists in India was held in Calcutta in December, 1917—the convener being Professor Hamilton, the Minto Professor of Political Economy in the University of Calcutta., The second meeting was held in Bombay in December, 1918, at which Professor Anstey (Principal, Sydenham College) presided. At this meeting the constitution of the Association was drawn up and adopted. Both meetings were attended not only by professional teachers

of economics but by many experts whose names are familiar in circles of business and finance in India.

The objects of the Indian Economic Association are academic, and include (a) the holding of Annual Conferences; (b) the publication of the proceedings of the Annual Conferences; (c) the publication of a Journal and its free issue to members; (d) such other action to promote economic science and the dissemination of economic information as may be deemed advisable. For the present year, while the Association is still arranging to have an organ of its own, the proceedings are published in the Indian Journal of Economics. The present volume contains, therefore, nearly all the papers read at the Conference printed in full, whilst at the end of this volume is a record of the proceedings of the Conference.

There are already local and provincial associations for the study of economic problems and their undoubted utility can be increased by co-ordination of work. Arrangements will, therefore, be made by the Committee of the Indian Economic Association for cordial co-operation with these local bodies as well as with all Indian Associations having cognate aims.

The Annual Conferences will be held each year during the Christmas holidays at a different Indian centre of business and education, and at these Conferences a number of papers on the economic problems of the day will be read and discussed. On the invitation of the University of Madras, the next Conference is to be held at Madras.

The membership of the Association will be open to teachers and students of economics as well as to other persons interested in economics in general or in special economic problems. The annual contribution from members is fixed at Rs.12 per annum and this entitles members to attend Conferences and to receive copies of such papers read at the Annual Conferences as may be published, and any other reports of the proceedings and all other publications of the Association. The annual contribution for associates is Rs.6 per annum and this entitles associates to attend Conferences and to receive such reports of the proceedings as are published by the Association, but not to vote on the affairs of the Association, nor to receive the Journal or other publications.

The Government of the Association is vested in a Committee. For the current year the Committee consists of the following: Professors Anstey, Burnett-Hurst, Coyajee, Horne, Jevons, Kale and Lyons, Drs. Harold Mann and Gilbert Slater and Mr. C. S. Deole. The following officers were elected for the current year: Chairman of the Committee: Professor Anstey, Principal (Sydenham College, Bombay). Honorary Treasurer: Professor Stanley Jevons (University of Allahabad). Honorary Local Secretary: Dr. Gilbert Slater (University of Madras). Honorary Secretary, J. C. Coyajee, Presidency College, Calcutta.

Applications for membership should be forwarded to the Honorary Secretary.

FIRST INVESTIGATIONS ON THE EFFICIENCY OF AGRICULTURAL LABOR IN WESTERN INDIA

HAROLD H. MANN, D.Sc. DIRECTOR OF AGRICULTURE, BOMBAY PRESIDENCY

One of the commonplaces of books on India is a statement to the effect that Indian labor is extremely inefficient, and that it is to this inefficiency, in part, that the slow development of the country is due. But so far as exact data on the subject is concerned there is little or none in existence, or at any rate presented in most of the books or papers which speak so confidently on the matter. And yet it is a matter on which the greatest caution, it seems to me, should be exercised in expressing an opinion, for efficiency in labor is such a complex question that unless it is very carefully investigated, and the various factors included in the term 'efficiency' are isolated, it may be possible to come to totally erroneous conclusions.

I will only suggest one factor which has, I believe, been forgotten in most statements on the subject,—

namely that of the efficiency of supervision. In the west, the question of supervision and the means by which the most can be got out of the actual workers have been reduced to a science. The methods of appealing to the workers, of giving stimuli to which they most readily respond of encouraging regularity of work, and so on, have been very carefully studied and applied. In India, on the other hand, little has been done, and the usual methods of trying to get the best out of Indian workers differ little from those which are employed elsewhere, although the mental attitude of the latter is very different.

I do not wish to discuss the matter, however, further on general lines. My purpose to-day is rather to lay before you the scheme I have made for investigating the efficiency of Indian agricultural labor, and request criticism from a body of economists like the present. I also wish to lay before you some of the first results which I have obtained, in spite of the very great difficulty I find in interpreting them, and in comparing them with figures obtained in the west.

The method which I have adopted, in co-operation with one of my old students, Mr. R. K. Mody, in these inquiries, is to analyse the factors which determine and measure the actual amount of work performed in a day by a man in various agricutural operations. Most of these are measurable. Having made this analysis, I have prepared forms which can be used for the principal kinds of agricultural work, and then one of my assistants or co-operating agents can collect data with regard to each of these measurable factors. To make such a study satisfactory it would be necessary that the conditions of labor should be limited, and the area concerned as far

as possible uniform, so that a large number of data can be obtained, and the range of variation obtained. But by the use of such forms as are now before you, I feel I can ascertain and see how far conditions are uniform and how far the amount of work done can be compared in different places. In each case it will be noted that I have arranged to measure the work done in one hour, and then to calculate from this to the amount of work done during a usual working day.

There is one difficulty which is almost peculiar to agricultural work which makes difficult such measures of the work done by a worker in a normal day's work. This is the fact that in most agricultural work you have animals and men co-operating. How much of the efficiency or lack of efficiency is due to the man or men involved, and how much is due to the animals? If we compare a man's work in ploughing, for instance, in India with that of a man in America, how much of the greater work done in America is due to the fact that horses are used instead of bullocks,leading to quicker work, and possibly to better work. As a consideration of this point would necessitate a preliminary study into the relative efficiency of different types of animal labor, and for this I have no facility at present, I feel I must for the moment abandon the idea of getting at the absolute efficiency of the man himself, and only consider what he can do under the conditions of equipment under which he finds himself.

I want to-day simply to present the results of a few tests of the average day's work done in ploughing. Now the work done in this operation can only be determined, even apart from differences of soil etc., when (1) the depth of the furrow, (2) the width of the block of soil moved at each movement of the

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plough, (3) the shape of the furrow is known. It is only when (if this be possible) the results are reduced to a constant depth, and to a constant shape of furrow, and the corresponding area which would then be covered by a man ploughing in the course of a day be calculated, that figures can be made comparable at all.

Thus, for instance, in comparing, the day's work done by a man with a country plough, and with a modern iron plough it is necessary to recognize that the furrow in the former case is nearly triangular while in the latter the furrow is rectangular—hence at a similar depth the amount of soil moved will be very much greater in the latter case. In the figures which follow I have tried to reduce all the records to the area which would be covered in a day by a plough giving a rectangular furrow, four inches deep.

One more difficulty arises in the interpretation of most cases one man both drives the results. In the bullocks and guides the plough; in a few, a boy is employed to drive the animals. If this is needed, it is obvious that the efficiency of the man is less than if he does the whole operation. taken,-how far I am justified in the figure, I am not sure—in my calculations a boy as equal to three-fifths of a man, and have reduced my figures accordingly. Again, in certain cases, a plough requires two pairs of bullocks, while another plough in the same land works with one. In comparing the work done by the laborer, should this be taken into account? After careful consideration, I have ignored it, and the day's work which I have recorded is that done by one average good ploughman, with the animal equipment which he thinks is necessary.

With this explanation, I may give the figures I

have got in several of our districts and on several of our soils. They are as follows:—

ONE MAN'S WORK PER DAY IN PLOUGHING (4" DEEP: RECTANGULAR FURROW)

		Acres
1.	Light, moist garden land (Charotar, Gujarat) Country plough	0.65
2.	Moist, clay loam (Alibag, Konkan)	
	Country plough	0.44
	Meston plough	0.20
8.	Moist, sandy loam (Kumta, Kanara)	
	Country plough	0.13
	Meston plough	0.50
4.	Dry, black cotton soil. (Gadag, Dharwar)	
	Country plough	0.47
	Ransome's C. T. I. plough	0.72
5.	Wet, black cotton soil (Gadag, Dharwar)	
	Country plough	0.98

I quote the figures as I have collected. I doubt the record of the Meston plough at Alibag,—and before any of these figures will deserve full credence, the number of records on which they are based will have to be very much increased. But, with the above exception, it would seem that the efficiency of a man's labor can be very much increased by adopting modern iron ploughs rather than those of the country. At Gadag the increase was about 50 per cent. In Kanara by between three or four hundred per cent. The amount is probably considerably greater than this, because no allowance has been made for the quality of the work done,—though I hope to do this in my further investigations.

Now let us compare these figures with those obtained in America, using ploughs drawn by two horses, and managed by one man. There is only one of my figures which can be easily compared with those recorded in America, namely that obtained in the dry black cotton soil at Gadag, with Ransome's C. T. I. plough. In this case one man and a boy

were actually required for the work, but I have calculated the results per man as described above.

In this case we have:—

- (1) Ransome's C. T. I. Plough at Gadag (8 hours-day work of one man) 0.72 acres.
- (2) Similar plough in America ¹ (8 hours-day work of one man) — 1.08 acres.

This would indicate that the ploughman in America, using his horses, is fifty per cent more efficient than the ploughman here, using his bullocks. I am aware that the data are insufficient to warrant much stress being laid on this conclusion, but I put it forward as provisional. Certainly the difference is much less than has usually been considered to be the case.

It will be noticed that I have not here considered anything about the pay received for the work done, and made no attempt to correlate work done with the pay received for it. That is a later stage in the investigation, but to introduce it at present would only serve to complicate the question which must, I think, first be worked out,—namely, what can be considered as a normal day's work of an expert Indian cultivator in various directions, given the best appliances which he has himself evolved, or those which have been more recently devised to suit the special conditions under which he is working.

¹ Calculated from data given by Mowry: A normal day's work for various farm operations. (Bull. No. 3, U. S. A. Dept. Agric., 1913).

A STUDY IN VILLAGE ECONOMICS

PROFESSOR V. G. KALE, M.A. FERGUSSON COLLEGE, POONA

For several years past, the Government of India has been frequently urged to make a special inquiry into a few typical villages in order to whether and to what extent improvement has taken place in the material and moral condition of the rural population. The severe famines which occurred over large parts of the country towards the close of the last and the beginning of this century, seemed to emphasise the need of such authoritative investigation and the refusal of Government to comply with the request in this respect, strengthened the impression in the popular mind that it was afraid to face an open enquiry lest it should disclose a state of things which would not be very creditable to the progressive character of the administration. What lent further strength to this belief was the fact that an enquiry had, years before, been made by the Government of India into the economic condition of several districts and the reports had never been published though a demand had been persistently made that the information collected should be communicated to the public. troversy over the Indian system of land revenue

administration which took place in Lord Curzon's time and the famous Resolution which the Government of India issued sixteen years ago in reply to Mr. Dutt's indictment, did not improve matters. Publicists and politicians have, since then, not ceased to call for an inquiry by competent and independent persons, and it was only in September last that a resolution was moved in the Supreme Legislative Council on this subject and was not accepted by Government. The feeling is still there that the economic condition of the rural population is not only not satisfactory, but is in many places deteriorating, and that the whole question must be thoroughly investigated in order that the truth may be found out and the self-satisfaction which prevails in certain quarters as to the supposed steady improvement of the village population may be shown to be unjustified. It is believed that the alleged prosperity of the rural population is only superficial and that there is stagnation if not deterioration in the majority of our villages.

Fortunately this subject no longer lies in utter obscurity; the veil has been lifted up in several places and light has penetrated where there was The efforts of ardent students have recently been directed to the field of rural economics and the material condition of villages has been carefully investigated in several places in Madras, Bengal and Bombay. The inquiries have been and are being made by men with trained minds, men who know how to collect facts, to sift them and to draw correct conclusions from them. An ounce of well-ascertained facts is more valuable than a ton of vague impressions and sweeping generalizations, and as the volume and variety of information collected on the spot with discrimination and regard for accuracy steadily grows, we shall have sufficient data on which to base useful conclusions and recommendations. It is not to be supposed that no other material existed before the recent enquiries, bearing on the economic condition of the rural reports of the three population. The Commissions are replete with interesting facts, and the Irrigation Commission and other investigating bodies have thrown interesting light upon the question. There are, besides, the reports of the Agricultural and Land Revenue departments which deal with matters which are sought to be covered by the economic inquiry suggested. The defect of these reports, from the popular point of view, is that they are compiled by officials who are supposed to be interested in showing off things in more glowing colors than facts warrant and this impression largely detracts from the value of the publications. here that independent inquiries made by competent economists supply a great want, and therefore, the work recently done in this line, deserves emphasis and commendation. The accuracy of the facts ascertained in the course of investigation and the correctness of the conclusions based upon them even by painstaking, trained and unbiased men will, of course, be called in question, but that is not a very serious matter because it is open to anybody to test them by actual observation and study.

The ascertainment of the material condition of the people of a taluka or even a village, is a complex and difficult thing. There are so many different factors to be taken into calculation that an error in this behalf will vitiate the results and destroy the value of the inquiry. The intensive study of individual villages has its importance. It is calculated to show the causes of the improvement in the condition of the people of a certain place so as to suggest remedies for application to other areas. If the condition is

unsatisfactory in other villages investigated, as determined from a given standard, means may be devised to improve it in the light of the experience gained measures are necessary elsewhere. Ameliorative for the advancement of the well-being of villages, and they may be suggested by a study of isolated areas. But the places selected for investigation, though they may be typical will not warrant general conclusions about the material condition of wider areas. In homogeneous groups of villages, it is indeed possible 40 generalize from individual cases, but the different groups and areas are so closely related to one another and exercise such important influence upon one another that it becomes necessary, in order to be able to evolve any useful induction, to deal with larger blocks of territory. The study of a small, limited object is calculated to conduce to accuracy of treatment and to yield definite results. But what is of greater interest, is a knowledge of conditions and tendencies prevailing over large areas and affecting the destinies of masses of the rural population. In the process of transition and evolution which is slowly going on in this country, it is necessary to take a comprehensive view of the changes which are occurring before our eyes. Conflicting forces are at work and for the deficiency and deterioration that may be noticed in certain places there may be more than sufficient compensation afforded elsewhere.

While a detailed and intensive study of isolated typical villages has its value, the limitations of the usefulness of the conclusions drawn from it have to be duly recognised. Sir Denzil Ibbetson thus made the following remarks in the Viceroy's Council in reply to the demand of the late Mr. Gokhale for a village inquiry:—"He proposes an enquiry into 'the condition of a few typical villages.' But who is to decide what

villages are typical? Do villages indeed exist which can safely be assumed to be typical? I can imagine nothing more misleading, nothing more dangerous than an enquiry of this nature, conducted with the avowed intention of arguing from the minute particular to the enormous general—of having a huge pyramid of conclusions upon the slenderest apex of facts." That this view of the matter is held even to-day by-Government, may be seen from the speech made by the Hon'ble Sir Claude Hill on the resolution moved in the Supreme Legislative Council by the Hon'ble Rai Bahadur D. B. Shukul in September last. He took the conclusions formulated by Dr. Mann in his 'Life and Labor in a Deccan Village' to demonstrate the danger of concentrating inquiry upon typical village and to suggest that the results of his enquiry were not of conclusive value in reference to the economic condition even of the particular village selected for investigation. Sir Claude characterised the results of Dr. Mann's inquiry as liable to be misleading and 'likely to give results contrary to facts,' and commended inquiries of the type of the one carried out by the late Major Jack in Bengal and dealing with a whole homogeneous district. Such criticism, I am sure, has not depressed Dr. Mann, nor will it discourage any other student of economics worth his The Government of India, for instance, while agreeing with most of the conclusions of Mr. Datta's inquiry into the causes of high prices in India did not accept his view that the prices of food grains had risen because production had failed to keep pace Difference of opinion of this nature with demand. there will always be, and it cannot be allowed to cool the ardor of the investigator. What I wish, however, to emphasise is that while villages in different situations must continue in larger number

to be put under the economist's bell jar and to be minutely scrutinized, it is necessary that they should be studied in their relation to the surrounding district, and a comprehensive view of whole talukas and districts should be obtained. The dynamics of village economics deserves as much attention as the statics, if not more. The construction of new roads, the advent of railway, the opening of a canal, the starting of a factory, the introduction of motor transport, the occurrence of famines and droughts, the prevalence of plague and other diseases, the migration of rural population to towns and public works in the vicinitythese and other factors are continually disturbing the placid tenor of our village life and the farreaching changes taking place on all sides, must be carefully watched in order that the material condition of village people may be correctly appreciated.

The economist in India, as elsewhere, must plough his own furrow and must sow in favorable and unfavorable conditions alike. I wish, however, to put in a plea in this paper, in favor of co-operation between economists and Government officials who are charged with the duty of carrying on periodical inquiries into the condition of the rural population. Officers of the Land Records and Agricultural Departments and those who are entrusted with land revenue settlements in temporarily settled provinces, have regularly to make detailed inquiries into the economic condition of large village groups. Up-to-date records are now maintained with respect to the condition of the rural population and the settlement reports may be found to cover long periods dating from the early decades of the last century. The inquiries are made by competent officers whose reports are scrutinized by higher authorities before their recommendations with regard to the rates of land revenue are sanctioned by

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Government. It is true that settlement officers make their inquiries with one eye fixed upon the possibility of an increase in the revenue, but though the correctness and wisdom of their proposals regarding revenue may be open to challenge, the facts collected and presented by them are extremely valuable. The inquiries generally relate to talukas and take into account the improvement or deterioration that may have taken place, during the currency of settlement. in 8 cattle. education, population. sanitation. of communication, health. means trade. prices, rents, non-agricultural industries and other aspects of the material and moral condition of the people affected. Government has a regular machinery collecting information and maintaining the village records up-to-date. Tax-payers' money is liberally spent upon this work and there is no reason why an effort should not be made to enhance its utility In view of the constitutional changes to the public. which are imminent, it is inevitable that the economic inquiries made by officials should be rigorously scrutinised by the public and competent non-officials should be associated with them. It is difficult to say whether the land revenue administration will be a 'transferred' service, at least in some provinces, under the new constitution. There is no doubt, at any rate, that it will be subjected to greater popular control. This is an old demand, and whatever may be the nature of the coming reforms, there is no harm but positive good in associating independent, village inquiry trained economists in the work of which is at present done only by officials. The question of enhancement or reduction of land revenue, important as it is, should be decided on the merits The outside element is mainly intended of each case. to help the inquiry with its unbiased and independent

outlook and to render it more comprehensive and suggestive from the point of view of economic and social reform.

Land revenue settlement officers cannot be expected to go into the minute concerns of domestic life of villagers. They have to cover extensive ground and look for certain decisive indications of progress and prosperity. The main object of their inquiries is to ascertain if a group of villages may stand an increased rate of revenue per acre or the existing rates must be reduced on account of deterio-They have before them the data on which the current rates were based and also the record of the economic and other developments which may have taken place during the interval. A comparison of the two tells them if and what improvement has taken place, and their recommendations are founded upon a close study of the facts and figures compiled for the purpose and tested by personal observation, where necessary. Settlement officers have to make out a case for the propositions they lay down and also the proposals they put forward. This requires a discussion of the economic condition of a group of villages, and though it is intended to serve a revenue purpose, important problems concerning the well-being not only of a taluka but of the whole presidency, are involved in it. Economic theories bearing upon the condition of the rural population are found freely discussed in the setttlement reports and interesting attempts are made to apply them to the inquiry in and Adam Smith being quoted in hand. Malthus against certain propositions. favor of or student of economics would feel interested in the presentation of facts and the formulation of conclusions seen in the settlement reports, especially because the fate of millions of cultivators and others is determined

by them. I do not propose here to enter into the controversy about the relation between land revenue and the material condition of the people and about the nature, incidence and justification of that tax as a source of State income. It is sufficient to point out that there is much more involved in the settlement inquiries than appears to a superficial observer, and that, for this reason, it will conduce to immense public advantage if they are supplemented by further investigation and outside non-officials and officials are admitted to participation in the work of study.

I shall give a few illustrations taken from various settlement reports published within recent years. The Assistant Collector of the Eastern Division of the Poona District writing in August, 1909, tried to establish the proposition that the high prices which had ruled in the tract under report did not benefit the bulk of the cultivators as at first sight might be thought. He observed:--"It is true that irrigators have been so benefited, as they have every year assured crop out-turns. Other cultivators, however, the vast majority, have, it can safely be said, not benefited at all. When the cultivator has either no crop or a poor crop just sufficient to maintain his family as has happened in the majority of years since 1895-96, high prices confer no benefit They are indeed only the index of the scantiness of crop out-turn.... Laborers are now as a class well off. But the cultivating owners of land in unirrigated villages who pay the Government assessment, are as in a crippled condition compared class the combined effects of 1895-96, owing to seasons, scarcity and dearness of cattle and dearness of labor." (Selections from the Records of Government of Bombay, 'D XX.—New Series). view of the Assistant Collector about high prices was

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repeated in the case of Indapur Taluka and did not meet with the approval of Government; and in their Resolution, dated 2nd November, 1911, they remarked:-"Government cannot, however, accept Mr. Brander's conclusion that the recent high level of prices is simply due to crop failure, local or general, nor the assertion that the cultivators have lost rather than benefited by the high prices. The causes and the nature of the rise in prices are problems of an infinitely intricate character, but it is certain that on the whole high prices of agricultural produce enrich and do not impoverish the cultivator." (Selections from Government Records. No. D XVI.—New series.) Here Government was clearly arguing in favor of a theory flatly contradicted by the facts cited by the settlement officer. An interesting point was raised by the Collector of Poons in forwarding the above report and related to enhancement of the rate of certain villages from Re. 1 to Rs. 1-2, proposed on the sole ground that they were near a railway station and got much carting to The Collector contended that it was doubtful whether proximity to a railway station and the consequent demand for labor, in itself could be considered a good ground for enhancing agricultural assessment. The demand for labor would, on the other hand. enhance wages and diminish agricultural profits. and their proximity to the railway would be considered by the agriculturists as an unmixed blessing. the villages generally having little to export.

To take another point. Mr. Brander had proposed that certain revenue rates should be guaranteed to the rayots only for a short period so that Government might not lose the advantage of higher rates to be obtained a few years later. On this, the Commissioner, C. D. remarked:—"Mr. Brander is in favor of a short guarantee, but Government is not a mere

money-making landlord and there are many important considerations that make it a sound policy to give a long guarantee." The comment of another official on this was:--"It is, I believe, a fact that the finances of Government now-a-days are so straitened that it is a matter of great difficulty after providing for ordinary recurring charges to find a surplus for meeting urgent and recognised wants. Under such circumstances, a Government which in justice to the general tax-payer and in the true interest of the country at large wisely husbands its principal asset, need not be afraid of the reproach of being a mere money-making landlord." Settlement reports on some of the talukas date from 1889 and farther back and give us a continuous history of the economic development of those areas extending over three generations. Captain Wingate in writing about the condition of the people in the Sholapur District in 1839, found in it a demonstration of the population theory of Malthus whom he quoted his report. He wrote:—"Notwithstanding the scanty population and abundance of unoccupied fertile land, we find that the means of subsistance obtained with difficulty, that the exertions of even the laborious and industrious cultivator do not always avail in enabling him to preserve his position and rarely indeed to better it.

A further interesting illustration of the important problems involved in settlement inquiries, is furnished by the reports upon some of the talukas of the Kanara Collectorate recently published, which may be taken as typical for our present purpose. The villages in Karwar taluka, which were the subject of investigation in 1908, had been originally settled at different dates between 1869 and 1872. The report starts with a description of the boundaries, physical features and soils of the Taluka and proceeds to give an account

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of the communications, markets, trade and fairs. export trade in rice is reduced to one-half in the course of thirty years while the imports have considerably risen. The population has increased 22.4 per cent, in 20 years being 58,460, in 1901. birth and the death rates are 31.6 and 22.6 per mille Primary education has made respectively. population The majority of strides. the agriculturists and there are no manufactures, a large number, 4,648, being fishermen. Of a total agricultural population of 56.66 per cent, 34.63 per cent, cultivate themselves. Rent is generally in kind and there is a certain amount of rack-renting. The gross yield of rice land is from 18 to 22 khandis of paddy per The occupied area at the introduction of the survey was 32,098 acres assessed at Rs. 1,08,779 which stands now at 31,361 acres assessed at Rs. 1,05,924. The agricultural stock is not satisfactory. Prices have risen in an unaccountable way. The rice lands are leased at 4 to 5 times the assessment on the average. The revenue history of the taluka is, on the whole, good. There is a tendency on the parts of Government servants to settle in Karwar on their This has enhanced the value of land retirement. both for agricultural and non-agricultural purposes, to an extravagant figure, Rs. 600 being given for the best The settlement officer concludes that rice land. when all is said on the other side, the taluka shows signs of progress, and can stand an increase of assessment, amounting, after some regrouping, to 7.8 per cent.

Here we have a record of facts and tendencies of the most absorbing interest, which ought to prove attractive to the economic thinker. I must, however, resist the temptation of commenting on them here and would only state that if the information is supplemented with facts and figures as to certain other matters bearing upon the moral and material condition of the people and by personal observation and study on the spot, the results are bound to be more instructive and fruitful. The questions relating to trade, high prices, rack-renting and the absence of industries in the above instance, affect the wellbeing of a population exceeding half a lakh and ought to engage the anxious attention of the student and the economic and social reformer. They did not fail, as a matter of fact, to be noticed by the Collector, the Settlement Commissioner, and the Commissioner, The Collector strongly recommended the restoration to the people of certain forest privileges of which they had been deprived to the detriment of the efficiency of agriculture. He contended that high prices in a taluka which was mainly agricultural and had to import rice for feeding the population, could not be regarded as a blessing except to a few big The subletting value of land in certain areas was unnaturally high and there was a certain amount of rack-renting. The Collector, therefore. while accepting the facts presented by the settlement officer, did not agree with him as to his conclusions. The Settlement Commissioner did not accept the view of the Collector and pronounced, with respect to the effect of high prices upon the cultivators, that "individual holders of land must benefit from high prices to the extent of their produce; in fact, the 'haves' must gain at the expense of the havenots." In their Resolution on this. Government observed:—"They also consider that the high prices of land are due to the pressure of the population, that the same cause accounts for the high rents and that there is a distinct danger that, as suggested by the Settlement Commissioner, any material increase of assessment may fall the tenants." These remarks drew forth from Mr. G. Monteath, the Collector of Canara, in 1913, a spirited reply in which an attempt was made to show (First Revision Settlement of Honavar Taluka, Government selections, No. DLVI—New series) that the orders contained in the above resolution were based upon incorrect premises, that there was no rackrenting and that the high prices of land were not due to the pressure of the population.

I hope I need not multiply instances to prove how questions of the most vital importance to the rural population and, therefore, to the country general, are raised, discussed and disposed of in the course of settlement inquiries. Economists cannot afford to stand aside and allow these problems of material development and state policy to pass unnoticed. They should not be deterred by the fear of trenching upon what is regarded as the revenue officers' domain. I should wish a body like this Economic Conference to take the lead in advocating the course I am suggesting in this paper. It has been already made clear that enquiry into the condition of individual villages has its value, and a study of larger areas must be undertaken to supplement such investigation, not to supersede it. From remarks the Hon'ble Sir Claude Hill made in the Supreme Legislative Council, there is no doubt that the Supreme Government will suggest to the Provincial Governments the idea of causing economic inquiries to be held in particular areas. I venture to submit that this Conference should urge the extreme desirability of associating outside and nonofficial workers in the field of economics, in the proposed inquiries whenever and wherever ordered by Provincial Governments. I have further to urge this kind of collaboration in all settlement and other economic enquiries that are officially made as a matter of administrative

routine. This may strike some as an extravagant proposal, but in view of the constitutional reforms that are imminent, the proposition is perfectly feasible and the adoption of the suggestion is absolutely necessary. Small committees consisting of experienced revenue officials and independent economic inquirers may be appointed to examine the conditions prevailing in certain areas to begin with, or still better, should be attached to the ordinary revenue administration machinery to render its work more productive. sum up. (1) Investigation of economic conditions prevailing in large areas like talukas and districts should be carried on along with the intensive study of isolated typical villages, in order to ascertain the dynamics of rural life, undergoing a rapid change. (2) A lot of this kind of work is already being done by revenue officials and a large establishment is maintained by the State for collecting facts and reporting upon them. (3) Advantage may well be taken of the existing official machinery; and revenue officials and outside students may co-operate to make the economic inquiries more comprehensive, suggestive and fruitful. (4) It seems that Provincial Governments will be called upon to order special inquiries into the material condition of rural areas, in the near future, and in this and in the normal work of vestigation carried on by district and other officials. capable students from outside should be associated. These arrangements will result in incalculable benefit to all parties. (5) This is a question in which students of economics are as much interested Government and people; and the Economic Conference will only be doing its duty if it takes up the suggestion and presses it on the attention of every one concerned in the material well-being of the people at large.

THE CO-OPERATIVE MOVEMENT

THE PRESENT FAMINE

IN THE BOMBAY PRESIDENCY

R. B. EWBANK

REGISTRAR OF CO-OPERATIVE SOCIETIES,
BOMBAY PRESIDENCY

Before attempting to gauge the impact of the present famine on the co-operative system of Bombay Presidency, it may be well to clear the ground by explaining briefly what stage of dovelopment that system has reached and what are its present resources. On March 31st 1918, there were in existence 1650 co-operative societies, comprising 156,000 members and commanding a working capital of 162 lakhs of The movement has both an urban and a rural side. But since with non-agricultural societies famine is not necessarily the paramount fact wholly determining their position, but merely one element in the general economic situation; it is proposed to leave this type of society on one side for the present and to deal first with agricultural societies and their financing agencies, where the direct effects of the famine can best be seen.

The number of agricultural societies in existence on March 31st last in this presidency was 1,390 with

101,000 members and a working capital of 72 lakhs. On November 80th this number had risen to about 1,600 but the increase in their membership and capital is still unknown. These 1,390 societies were supported and partially financed by 10 central banks controlling a working capital of 421 lakhs. The average working capital available to the members of agricultural societies per head was Rs. 71 only. These societies are in nearly all cases situated in villages, and are composed of working agriculturalists, holding their lands on the ryotwari tenure, and of village artisans ministering to the needs of agriculture. The monsoon of 1918 has failed generally and it appears that except in eight districts, where the crops have been poor to fair, and in certain irrigated tracts, famine conditions are likely before long to be established throughout the whole Presidency.

While the situation is still obscure and developing, it is impossible to judge precisely how the famine will ultimately affect co-operative societies and banks. This paper is merely an attempt to forecast its results and to consider how the co-operative system is likely to react to them.

Since the co-operative movement was first initiated in 1904 no severe or wide-spread famine has tested its stability in any part of India. Local famines have indeed been experienced in Gujrat and the northern parts of the United Provinces in 1911-1912 and 1918-1914 respectively, and their effects have been explored by the Committee on Co-operation. From the statistics collected by them, that Committee observed that repayments of loans were much delayed and the grant of new loans was slightly contracted. The effects of the famine on the receipts and withdrawals of deposits were found to be inconsiderable. They held that the assistance of societies, supple-

mented by Government Loans, was not inadequate to the essential requirements of their members. But these famines were too limited in area and too mild in their incidence to afford any trustworthy criterion as to the probable effects of a complete and general failure of the monsoon over a large area. The present writer feels therefore that he is to some extent groping in the dark, and has prepared this paper more with the object of eliciting the criticisms and suggestions of this Conference for the guidance of the Co-operative Department than in the hope that he be in a position to throw any new light on the subject.

The first and most obvious result of the paralysis of agriculture, arising from a general famine is that members are unable to repay their loans on the due dates. Money invested in the land fails to fructify. The labor and capital expended on agriculture are lost. Instalments of loans granted for the redemption of old debt, domestic expenses or other technically non-productive objects are even less recoverable. Nine-tenths of the capital of agricultural societies are invested in loans to their members, and in famine districts the whole of this sum, with the exception of the small percentage invested in irrigated crops, will be immobilised. Extensions till the following season will have to be granted and in most cases the best that can be hoped will be the recovery of interest. It would be ridiculous to drive members to the sowkars for loans with which to pay off their debts to societies in order to bolster up the credit of the movement and to give a appearance of punctual repayments under adverse conditions. Central banks will be in a slightly better position, because by spreading their investments over a wider area, they are able to average out their risks to some extent and may reasonably expect some small recoveries. But in their case too eight-ninths of their capital is invested in loans to rural societies, and it may be conjectured that in most cases they will have to carry at least three-quarters of these advances forward unrecovered to the next season.

Simultaneously with the drying up of recoveries. a demand is likely to arise among depositors for the refund of their deposits. The capital of agricultural societies consists of: deposits from members 22 per cent and from non-members 17 per cent; as against 50 per cent loans from central banks. How can the demand of depositors possibly be met in view of the fact that the capital of societies is locked up in unrealizable loans? Fortunately the position is not so black as it appears. Rural societies may not accept current deposits and rarely accept deposits fixed for a shorter period than one year. They are therefore absolutely protected from any sudden rush of depositors. over in practically all cases the deposits consist of good lying money which the depositors have intention of withdrawing. They are local in origin and can to a large extent be controlled by the local influence of the Committee. Members hesitate long before pressing any demand which may embarrass their own societies, while non-members can scarcely fail to realize that, if they insist on repayment, the money to meet their claims must be squeezed out of the pockets of their neighbors and friends. However, too much should not be made of these safeguards. since people who have saved up some small deposits by the practice of thrift and self-denial are certainly entitled to fall back on them in a famine year and would be discouraged from making further efforts in future if they found that their hopes of enjoying their money on the due date were frustrated. The

whole credit of the movement, particularly with outside investors, depends on the punctual repayment, of deposits. Such recoveries as societies are able to make must then be reserved for meeting their liabilities to depositors, and any deficit must be made up by loans from central banks, which must conserve their resources to meet this supreme call upon them.

The position of central banks in the mofussil will be similar to that of rural societies,—probably slightly better in the matter of recoveries, and slightly worse in the matter of withdrawals. No less than 60 per cent of their capital is derived from deposits, and the depositors will be far less susceptible to the restraining influence of the Board of Directors than village depositors, and are therefore more likely to insist on repayment on due dates. On the other hand these banks have provided themselves with considerable fluid resources on which they will be able to draw in the event of an emergency.

Mercifully the position of the Bombay Central Bank, which in this Presidency serves Provincial Bank, will on the contrary be very strong. Not only is half its capital permanently owned and non-withdrawable, but it commands ample fluid resources amounting to some eight lakhs of rupees, and has no reason to expect any special ef-fluence of deposits. It is the usual experience of banks situated at the big centres of trade in a famine year that owing to the shrinkage of commerce the demand for money declines and deposits are on offer at exceptionally easy terms. The war and the heavy financial requirements of Government may on this occasion prevent the money market from following its usual course; but on the whole there appears no ground for anticipating any special financial stringency with regard to deposits in the Bombay Central Bank.

On the contrary some increase in its holding of deposits may be anticipated.

It is generally agreed that the movement is strong enough to bear all necessary extensions of loans and withdrawals of deposits; and it is believed that it will in addition command a margin of resource which will be available for financing agriculture. a meeting of the Directors of the Provincial Bank it was decided that the extent of this margin would not be known until the end of the hot weather and that in any case the finance of next year's crops had the first claim on the resources of the movement. Apart from the loans for the purposes of irrigated crops which are unaffected by the famine and which are recoverable in the course of the next hot weather, it was therefore decided to grant all necessary extensions, to help societies in meeting withdrawals of deposits, and for the rest to stand fast and conserve until the agricultural season of 1919 should set in.

This may not seem a very heroic course but it is at any rate safe and conservative, and in the absence of further experience of famines it seems the only course consistent with a proper regard for the interests of denositors and shareholders. It may seem to some a lame conclusion that after 14 years of effort societies in the face of a famine can do nothing better than retire into their shells and wait for happier days. Nobody deplores this impotence more than the present writer, who is overwhelmed with applications from famine sticken villages for loans for purchasing cattle-fodder, for human maintenance, for repairing walls, and so forth. But it is impossible to escape from the logic of facts and the conclusion seems unavoidable that the co-operative movement, as at present constituted, will not for many years be strong enough to tide its members over a famine on its own resources.

Let it be assumed—as normally sanguine co-operators are willing to assume—that the funds of the movement will just suffice to grant all necessary extensions, to meet all withdrawals and to finance the forthcoming crops on a reasonable scale. The question remains how the members of societies, who have reaped little or no harvest, are to maintain themselves, their families, and their live stock, until next July? The position is an awkward one. The members have pledged their credit to their societies in undertaking joint unlimited liability and in several cases have actually mortgaged their lands to their societies. It is therefore hopeless for them to turn for relief to the sowkars whom they have deserted, and who as a rule find it difficult enough to tide their own regular clients over a bad season. Their societies can do nothing for them. The only resource open to them is takavi from Government, which is usually distributed freely at the opening of a famine as a measure of moral strategy. But by resorting to takavi they superimpose upon their land a liability, which, though incurred later, takes priority of the previous incumbrances when it comes to recovery. The society, being itself unable to help, cannot reasonably withhold its assent from such recourse to takavi. and is compelled to sit by with folded hands and watch the security on which its own credit is mainly based melting away before its eyes. It has been suggested by the conference of registrars that takavi should be given to members without this previous consent of their society; and in Presidency societies are permitted to send in lists of members whom they recommend for takavi and for whom they are willing to stand as surety. But? whatever the system may be, the real security which forms so large an element of the total credit of any society is bound to diminish.

Even if the movement had at its command ample funds to finance all co-operators over a famine, it is difficult to see that the situation would be much improved. Without taking account of the eternal old debts of agriculturists, there would still remain the liability for their suspended land revenue and for the borrowed capital swallowed up in the failure of the preceding harvest. Moreover fresh loans would have to be found for the next cultivating season. In a ryotwari province, where large classes of agriculturists can barely eke out a subsistence from their land in a normal year owing to the smallness of their holdings, the credit which they are able to offer cannot fairly bear an accumulated charge of this sort. Societies might find themselves in the dilemma of throwing good money after bad. Government may in the last resort grant remissions, but societies which are not charitable institutions can never afford to do this, unless they charge enormously enhanced rates of interest to cover insurance against this risk. their present holdings the credit of many agriculturists would have reached its breaking point long before their needs were fully met. In such cases it is manifestly unfair to disparage co-operative societies for refusing to surcharge their credit and barter away their chances of future prosperity for the sake of their weaker members. However strong societies may be, they cannot afford to hang a mill-stone of bad debts round their neck. They are bound to differentiate among their members and to insist plainly and firmly that when a member has received all the finance that his credit can reasonably command, he must go to the relief works and send his stock to the cattlekitchen instead of lingering on to be a dead weight on his fellow-members. Such sternness amongst neighbors is difficult to achieve; but for co-operative societies it may be the condition of their survival.

It remains to consider the repercussion of famine among non-agricultural societies. These societies number 215 with a membership of 50,796 and a working capital of 481 lakhs. They are organized on a limited liability basis and carry on their loan business among the middle and lower urban classes. Salaries are always slow to adjust themselves to any rise prices; and it is likely that the middle class members of these societies will find that their margin of income out of which they expected to repay instalments to their societies has shrunk. The labor market is likely to be glutted and the wages of labor to remain at the level of bare subsistence. The present shortage of rolling stock, while keeping down the prices of agricultural produce in villages, will tend to enhance them in the big towns. It may be inferred therefore that repayments of loans are likely to fall gravely into arrears, and that heavy withdrawals of deposits are probable. The situation of these societies entirely different from that of agricultural societies. because no less than 64 per cent of their capital is derived from deposits, which are not necessarily local and are usually fixed for short terms only. As a rule they have a certain amount of fluid resource at their command; but a continuous run of depositors would soon exhaust these reserves. Owing to their limited liability, lack of real property, and less compact form, central banks will not finance these except to a minute extent (at present per cent of their total capital). They are therefore very much exposed to risk from adverse conditions. public credit of their managing committees, the mutual

trust of members, and great caution in granting any fresh loans or in any way depleting their cash reserves, will, it may be hoped, carry them safely through the crisis. But their position is not as solid as it should be in the face of a serious calamity. This type of society is probably at present the Achilles' heel of the movement.

The argument concludes to this that as an actual agency for famine relief co-operative societies are not likely to prove very effective and are indeed likely to find it as much as they can do to tide themselves over the famine without bankruptcy. But to admit this is not of course to deny their great value as protective agencies against famine.

Firstly these societies are organized and fairly efficient local bodies, which are capable of being used as part of the machinery of famine relief. In Germany co-operative institutions played for the first three years of war a very considerable part in the state organization for rationing and distributing food supplies. In India they are less numerous and less highly developed, and their business capacity would probably be overtaxed if they were entrusted with any very complicated functions. During the coming famine, food-grains, fodder, cloth and kerosine are likely to remain under official control. With regard to food-stuffs, societies can do little, because under the existing arrangements wholesale supplies of Burmah rice or Punjab wheat must be paid for in cash; and very few societies have got the necessary funds at their command. The control of fodder is an excessively difficult question owing both to its scarcity and its bulk, and no proposal to use societies for its distribution has been Arrangements have been made for distributing standard cloth through co-operative societies; but owing to the recent sharp fall in the price of all grades of cotton cloth, this proposal is now held in abeyance. On the whole it would probably be true to say that the time has not yet come when co-operative societies can be utilized widely for the distribution or administration of famine relief. In another decade this stage may be reached; but at present there are three serious obstacles. The capacity of rural societies for undertaking extraneous business efficiently is still extremely limited. Their number is small. They do not comprise the whole population, even in villages where they exist, and find grave difficulties in dealing with non-members.

Secondly the training which societies give in self-reliance and independence and the incentives which they offer to the practice of thrift can scarcely fail to have a moral effect on their members which should be of the greatest value in the face of a general disaster. Instead of relying blindly on Government or charitable organizations to lift the burden off their shoulders, they will have learnt the principles of self help and will make a more determined effort to stand on their own legs than the ordinary villager. If the society has been well run, the position of the members at the opening of the famine should be stronger than elsewhere. An excessive share of the produce of their labor and enterprise has not been drained away into the pockets of the sowkars. Old debts have been diminished, mortgages cleared off, protective land improvements undertaken. cultivation improved intensively. The members ought therefore to have accumulated some reserves, hidden away under their hearth-stones, which will help them to struggle through the year. Co-operation is no magic Sesame to create these benefits by its mere existence. But

wherever its theory has been understood and, as in the great majority of cases, honestly applied, there can be little doubt that the cultivators are both morally and economically in a far better position to face a year of stress and famine than they would have been without a society.

SOME LINES OF CO-OPERATIVE PROGRESS

J. C. COYAJEE PRESIDENCY COLLEGE, CALCUTTA

In the history of the co-operative movement in India we can distinguish several different stages or epochs. We have had the experimental stage and we have in the last five years passed through an epoch of consolidation. During the last quinquennium the policy of "brake" has been consistently followed in province after province and a great work of purification has been carried out in which a vast number of the weaker societies have been weeded out-a process which has strengthened considerably the cooperative movement. There is no other country which can boast of the performance of such a voluntary lustration. The last quinquennium has also been a period of consolidation of the higher machinery of finance and control, and our series of apex banks might be said in the main to be the work of the period under consideration. During the same period we have furnished public opinion which has backed up our movement so long and so well with suitable organs of expression and work like the Bombay Central Co-operative Institute and the Bengal Co-operative Organization Society. We have thus prepared the ground for the coming Epoch of Expansion,

The task of co-operation is growing from more to more and new problems are pressing for solution on all hands; with the industrial development of India co-operation will have on its hands the task of helping industrial operatives as well as agricultural The report of the Industrial Comission has emphasized the support that can be rendered to small and cottage industries by co-operation; but with all respect to the Commission it might be said that the potential services which co-operation can render in India's Industrial Renaissance are not confined to the use of small industries. It might be that co-operation will materially contribute to the solution of the much discussed problem of "paucity of labor" in India, and it is the only force that can prevent that conflict between capital and labor which has caused such disastrous effects elsewhere. But we have on our hands not only the problems of agricultural and industrial co-operation but the great question must soon be tackled of putting co-operation into its due relation with the great and pending political changes. Such a great administrator as the Hon'ble Mr. Lyon "looked forward to the time when the Co-operative Credit Society of each village, bringing the people together for all matters connected with the weal of the village, will linked up with the system of village and circle Government and will be ntilized 88 the efficient electoral unit". India, throughout the ages, the soundest and healthiest force both politically and economically has been the village and its panchayet, and the co-operative society is the legitimate heir to the last mentioned institution. In any scheme Institutional representation for India agriculture must take preëminently the first place and co-operation is the living force in agriculture. Another problem

which the expansion of co-operation must bring to the fore is that of propaganda and inspection and for these purposes we require an "Indian Co-operative Service". Had Sir Horace Plunkett been serving on the Industrial Commission, as originally intended he would have seen that an "Indian Co-operative Service" is as important as an "Indian Industrial Service" or an "Indian Chemical Service". At the back of all these problems is the greatest of all questions—that of the Finance of the Epoch of Co-operative Expantion. I cannot possibly discuss all these topics within the limits of a single paper but I might be allowed at least to indicate a few of their important aspects.

shall first take up the question of Finance because the organization of ways and means must precede any progress. In another paper I have noticed the controversy recently carried on in Japan about subsidizing co-operation from the large favorable balances of trade which that country has enjoyed during the war. I shall therefore not labor the point here but shall only add that in the case of India agriculture and co-operation have a special claim to be helped out of the surpluses created by agriculture. Some years mainly ago opiumsurpluses were utilized by our Government for purposes of public welfare. Similarly the credits which we have accumulated abroad should be used to bring co-operation to the doors of every agriculturist.

Another source from which co-operation can expect financial assistance is the Presidency Banks, particularly when, as is to be expected, they will have been amalgamated. Already in Bombay the Provincial Co-operative Bank is receiving assistance from a Presidency Bank. On the boards of the presidency banks there are able bankers who have an enthusiastic belief in the possibilities of such help. When

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Sir W. B. Hunter of the Bank of Madras was questioned on the point by the Chamberlain Commission, he emphatically asserted that agriculturists should be assisted out of the resources of any central bank. When he was asked further about the difficulties of assessing the agriculturist's credit, he answered "we have means of finding out the position of the agriculturists. There are title deeds and registration offices where you can find if there are any encumbrances". Indeed, one of the reasons brought forward for the establishment of a central bank was that: "It would form a link between what might be called the great banks of the country and the agriculturists, that it would link the money markets together, and that the Central Bank could undertake the task of lending to agriculturists, perhaps through co-operative societies". An idea which had the sanction of eminent bankers like Dunbar and Hunter deserves to be taken again when the idea of amalgamation is in the air. Nor can we neglect the possible help from industrial banks to co-operation, since India's greatest industry is agriculture—an industry which in the future will be carried on increasingly as a capitalistic system.

But it might be argued that the assistance from the credits which India has collected abroad will be only a temporary windfall, while not very much can be expected from the presidency banks and other banking institutions which will have their hands fairly full in assisting the industrial revolution which will begin in India in the near future. Hence I venture to suggest a third financial resource in the shape of loans from the fiduciary portion of the Paper Currency Reserve. In his work on "Indian Currency and Finance", Mr. Keynes has argued that "the manner in which the reserve against the note issue is kept is needlessly restricted. Apart from that portion

which is permanently invested, the whole is kept in gold and silver. This is in immitation of the rule governing the Bank of England's note issue".

He argues in favor of lending out a portion of the reserve on bills of exchange and other approved security. His proposal is that loans from the Paper Currency Reserve should be given out to help Indian traders and generally so as to reduce the fluctuations of the Indian discount rate. But, it might be added, that there is no reason why the whole benefit of loans from the Paper Currency Reserve should go to the commercial classes. The Indian agriculturist has at least an equal claim to the benefits from these loans and his need is even greater.

The importance of the resource for loans to which we have referred above can hardly be exaggerated. With the rapid extension of public confidence in any country's note system, the fiduciary portion of the reserve behind it is bound to develop. Perhaps there is no better illustration of this than is afforded by the growth of securities in our Paper Currency Reserve in the last four years, when the percentage of securities to the total reserve has increased from 18 per cent to nearly 62 per cent. We see from this that with a world war going on and with our Paper Currency figures reaching new records year by year, the Fiduciary Reserve has been more than tripled. It was a signal proof of the triumph of state credit, as most of the new securities added consisted of Treasury Bills or of securities created ad hoc. It is also very encouraging for credit of the paper of cooperative societies as long as they are supervised and their policy is guided by state officials.

The merits of our proposal depend upon the value of the pro-notes of our societies as securities. It is generally admitted that commercial paper is excellent

security on which loans can be made from the Paper Currency Reserve. But the question will be asked-Is the paper of Co-operative Societies as good as commercial paper from the point of view of security for such loans? We shall therefore institute a comparison between the security value of the two kinds of paper and we shall find favorable characteristics peculiar to each. The first point to be urged in favor of commercial paper is that it is capable of being turned into cash in the ordinary markets, while that is not possible at present in the case of the pro-notes of co-operative societies. In time, however, this defect of co-operative paper might remedied either by arrangements entered into with Presidency Banks under which they will undertake the duty of re-discounting agricultural paper or by the establishment of a state co-operative apex bank. A second point in which commercial paper appears superior to co-operative paper is the shorter period of the former. Commercial paper is drawn for from three to six months, while co-operative pro-notes are drawn for from six to twelve months. On further thought, however, this difference in usance does not go to the root of the matter. If there are a few thousands of bills in the port-folio of a bank or of a Government institution, a certain number of these bills and pro-notes which are bought on different dates must liquidate themselves day by day irrespective of the period for which they are drawn; and in this lies the chief merit of bills or paper as investments. Further commercial bills are very often renewed on maturity which is not the case with our pro-notes.

This brings us to the special merits of the paper of co-operative societies as securities. In the first place, the Central Bank which lends on the pro-notes of a primary society is constantly controlling and

inspecting the affairs of the borrowing society, but such minute control and inspection is entirely absent as between the accepting house and the drawer of a commercial bill; and this is a great point in favor of co-operative paper. Further a primary society has to take shares in a central bank in proportion to its borrowings from the Central Bank, and this naturally gives a further hold to the Central Bank on the borrowing society. Another important feature to be considered is the remarkable increase in the reserves of the primary societies—reserves which in cases go to buy shares in central banks and these shares are a further line of defence for the loans on which the pro-note is based. As if this was not enough, in some cases there is behind the pro-notes the further security of deposits made by the primary society in the Central Bank, while in every case money repaid by members to their societies is at once made available for repayment by the society to the Central Bank. Besides all this there is the unlimited liability of every member of the primary society, while such societies are inspected and their accounts are audited by Government Inspectors' whose number and vigilance is increasing. Finally, in the epoch of consolidation which occupies the last quinquenium, a vast number of the weaker societies have had to disappear. Looking to all these one can say that the pro-notes of the societies are almost an ideal form of security on which a portion of the fiduciacy reserve of our paper currency can be lent out to help the cause of co-operation in India.

Co-operative Representation

But co-operation is not only a great economic phenomenon; it has a very important political aspect as well. A few words might therefore be added on

the opportunity which co-operation now has before it of helping on the political development of India.

In the Reforms Report the political interests of the ryot have been deservedly, and eloquently emphasized and great bopes have been justly expressed as regards the results of his political education. But it is observed that the agricultural class is poorly equipped for politics and does not at present wish to take part in them. The agriculturist has sat on caste panchayets; he has signed joint petitions to official authority, but he has never exercised a vote on public questions. His mind has been made up for him by his landlord or banker or his priest or his relative or the nearest official. But, perhaps, this description, highly sympathetic though it is, overlooks the capacity of the co-operative system in organizing and guiding the political opinion of the ryot. The activities of co-operation are not limited to "advancing him money in bad days and waiting till he is in a position to repay it". With the organization of co-operation ramifying into the smallest village and binding together the cooperative interests of districts and provinces into various grades of federation, it might be found that the agriculturist will prove a very capable student representative institutions and that his power organizing might be superior to those of any other class. It is for the legislator to bring out the latent capacity of such an apt pupil by giving his representatives proper political work to do. The Report goes on to say, "when the local bodies are developed some of his class will have a vote on local questions. He will thus begin to discover that if there is no school near his village, or road to take him to the market, the right way to procure these benefits is not as heretofore by asking the Collector for them but by voting for the local board member who is most likely to get them for him". We might be permitted to draw a few corollaries from these excellent dicta in the Report.

To realize the above views the first step would be to grant seats on the village panchayets to members of the local rural society. This would greatly increase the prestige and the power for good which the primary society at present enjoys in village. But the political education of the ryot will be forwarded another stage when a seat will be given to a member of one of the local societies on the Local Board in the Sub-Divisional Headquarters. In a sub-division there might be 50 or 60 rural societies and these might elect a couple of members for the Sub-divisional Local Board. Nothing could further in a better way the political education of the ryot. We might go still higher and request that a similar "franchise" be granted to the agricultural interests on the District Boards. The fagricultural class forms the largest part of the population of India, and by the methods we have ventured to suggest one can bring political education of the best sort and the largest realization of enlightened selfinterest, to assist in its political and economic development. Indeed, we do not despair of seeing in a no very remote future "members for Co-operative Societies" in the Legislative Councils. Any increased weight given to the co-operative interest will be the truest way of giving at once greater security to the Government and the best political education to India. When representative institutions are established every class will have to work out its own salvation, and there is no reason why the agriculturist who is a member of the best and strongest federations in India should entrust his political salvation to other "politically-minded classes". "Man is a political animal",

says Aristotle, and given proper opportunities such as we have enumerated above the dictum might perhaps find its best illustration in the humble Indian ryot.

The recent Resolution of the Bombay Government on the administration of the Local Boards in the Western Presidency shows clearly that these Boards want badly the introduction of a more active element. While it appeared that "in no case was any interest evinced in the elections," in some cases there was even absence of candidates to offer themselves for the elections. As many as eighty meetings failed for lack of a quorum and the meetings of the Boards, besides being few in number, were badly attended. Such being the present condition of the Local Boards a revivifying element like that furnished by co-operation is surely to be welcomed. members of the panchayets who will enter these Boards will come equipped with real first-hand local knowledge and drilled into habits of regular attendance at and deliberations in meetings. Critics of the Reforms Report have pointed out that the financial side of the scheme advanced in it seems the weakest. Something can be done to remedy this defect by giving more share in the actual work of reform to the chief productive classes of India—the agricultural and the commercial groups, and by arousing and strengthening their interest in the general progress of the country. It is true that these classes are not so "politically-minded" as some others, but to say this is not a reproach but an encomium. As has been observed the vocal and politically-minded classes have grown somewhat hypersensitive in political matters; nor are they without considerations of self-interest to warp their political judgments. But the humble ryot—the horny-handed son of the soil—

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has no personal ambition in politics. If he is ambitious he is only so for the sake of the soil that he tills. It is now the right time to bring these matters energetically before the Franchise Committee. It is to be hoped that the various Registrars and provincial Federations will take up the matter and bring it into due prominence. From the Government and the official circles which have been always so sympathetic towards our aspirations nothing but encouragement can be expected. Finally, the Bengal Co-operative Organization Society and other similar associations will find in this direction their rightful sphere of work.

It has been objected to the above proposal that to constitute co-operative societies into electorates would be to divide them and to destroy their unity by splitting them on party questions. To this contention several answers might be suggested. In the first place it is a pure assumption that the introduction of representative institutions will be followed by the appearance of a two party system on the usual liberal and conservative lines in India as in England. The two party system, is not a necessary corollary of the representative system. Indeed, the later history of representative system shows that parties tend to be formed more and more on the lines of property. and the line of cleavage tends to be between those who have property and those-who have not. political and economic lines of cleavage are in the course of being identified more and more. case of India, if adequate representation on institutional lines is given to the main interest—agriculture facile princeps, industries and commerce—the formation of parties on the usual lines might be prevented and all groups might work wholeheartedly for the common welfare of the country and the empire. is the duty of co-operative bodies to insist on the

introduction of such institutional representation. In the second place, if a two-party system does not arise in the country, then in any case the members of our societies will be divided on political grounds and this division will necessarily find its echo in the councils of the society. This is the more likely to happen as there are not enough men of ability and affairs in the village or in the sub-division to furnish two sets of leaders, one for the economic work and the other for managing political concerns. The same members will be the leaders of political organizations and of co-operative bodies and their opposition will pervade all their work, on whichever side it is performed.

Co-operation and Industries

Having dealt with the financial and political prospects of co-operation we might now examine the place of co-operation in the industrial sphere. Tŧ must be acknowledged that hitherto co-operation in India has had a one-sided development—we have mainly worked at facilitating rural credit. however, has, as was only to be expected from its enterprize, taken the lead in the matter of mill hands' and artisans' societies, and the Debt Redemption Committee has been doing meritorious work. The recent Industrial Commission has emphasized the need of industrial co-operation with reference to small and cottage industries and has recommended that urban banks of the Schulze Delitzsch type must be given a trial for the benefit of urban artisans. But the utility of co-operation for Indian industrial progress goes far beyond the modest scope thus assigned to it. Sir Horace Plunkett served on the Industrial Commission, as was originally intended, the possibilities of industrial co-operation would have been given a much larger place in the Report. In one sense

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indeed it might be said that factory industry in India will never be placed on a proper basis until co-operation has developed on the urban side. One of the the progress of hindrances to Indian greatest industry is the "paucity of labor". This mysterious phrase does not imply any inadequacy of mere human . In a recent speech Sir Harcourt Butler expressed the true significance accurately attached to the phrase. "At present our labor is The bulk of it is recruited from rural immobile. areas and is uncertain and unstable". And well it What with poor housing, want of congenial surroundings, absence of any esprit de corps, with high costs of living and still higher usury eating into his pay, there is no wonder that labor from the country does not take to urban conditions. is for co-operative effort to make him take more kindly to city life. The efforts of Debt Redemption Committees such as have been started in Bombay should enable him some day to call his wages his own. Housing societies among working classes should acquire for him the possibility of living in a decent cottage. His morâle would be raised by belonging to a co-operative society and then we shall hear no more of "paucity of labor". Indeed, thus fortified the laborer will be able to bargain with his employer on terms of greater equality and independence. Factory Acts too on which the welfare of labor depends to so great an extent will be better enforced when the laborer will have a co-operative organization of primary societies, unions and federations to give voice to his grievances. In short, the organization of labor on co-operative lines will serve many of the functions of Trade Union Organization without importing the excesses of the latter movement, and will thus benefit at once capital and labor. We

must not forget that there is a border land between Co-operation and Trade Unionism and they have some beneficial features and functions in common.

Incidentally the recommendations of the Industrial Commission if followed out will open fresh field for introduction of the principle of Co-operative Where the Production. Commission has advocated provision of current finance for middle entrepreneurs it might have added that such provision of capital should be granted the more readily in cases where production is carried on by groups of persons collectively and on co-operative lines. is an additional advantage to government in dizing such co-operative production since the loans would be backed up in these cases by the collective liability of the members of the group working jointly. In many cases of the kind, for instance, in the matter of small factories started by groups of weavers, there is the additional advantage of the pooling of the skill and resources of the joint workers. any case when such financial help is given by the state. our co-operative Industrial Societies should have a special claim on it alike in the interests of the lending Government and of the borrowing bodies. Government is going to take a hand in the work of financial irrigation, the ready made streams and channels which have already been formed by Co-operation should be advisedly utilized in the work of such irrigation.

We shall now indicate some of the opportunities for introducing the principle of Labor Co-partnership in India. The Industrial Commission has made some valuable suggestions as to powers to be retained by Government in those cases where industrial undertakings receive state aid. Such aid can be rendered by the state in various different ways, e.g., by way of guarantee of dividend or by subscription to the share

capital. It is wisely emphasized in the Report that in such cases Government should see to it that the opportunity of subscribing to such undertakings is fully open to all classes of the public. Government should also in such cases control the allotment of shares, for example, by formulating rules designed to give an opportunity to small investors to join in the Industrial enterprize. The Government and the public whom it represents should obtain a quid proquo for the assistance given to the Industrial undertakings.

We accept such dicta of the Industrial Commission and welcome the proposals so far as they go. we cannot help observing that the Commission should have gone much farther and should have suggested that power should be reserved in such cases for the initiation of the principle of labor co-partnership into Indian industries. India is about to begin a new stage in a vast Industrial Revolution, and such Revolutions though they are on the whole beneficial to the nation have also dangers for labor. industrial history of the most advanced nations has shown the need of labor co-partnership both in the interests of capital and of labor. Some of best firms abroad have seen that the only way to reconcile the interest of capital and labor is introduce such co-partnership or profit-sharing. India we should take opportunity by the forelock and prevent the very beginnings of any antagonism between capital and labor. The labor question is becoming very serious throughout the world and we should lay down a policy at the start which should eliminate the possibility of such dangers arising in our country. If the Government is to control the allotment of shares, as the Commission has said, why should not some of them be reserved to be

handed over to labor in part payment of wages? If the opportunity of subscribing is to be kept fully open to all classes, what class has a greater right to that privilege than the operatives? If the working classes are also induced to become "small investors" in the concerns they will work the harder for what they will come to regard as their own business. When the Government subscribes to the share capital of a firm, as urged by the Report, it would be the best policy to keep the shares in hand and to sell them as time goes on to the operatives on favorable terms and in small amounts. The Indian Government has a unique opportunity of furthering the common cause of Industry and Co-operation such as perhaps was never vouchsafed to any other Govern-In most other countries the Industrial Revolution has generally been begun and accomplished by the unaided efforts of the entrepreneur class. In India we have the opportunity of benefiting by the mistakes of other nations and the country has called on the Government to lay down a plan of the course industrial development and to guide and to help them in such development. It is a great chance for initiating the beginnings of Industrial Co-partnership in India and of starting a new chapter in the great history of Co-operation.

The "Indian Co-operative Service"

While the services of honorary workers and volunteers is, and always will remain, of the highest value to our cause, few will deny the importance of a highly organized central force of regulars devoting all their time and energies to propaganda and inspection. A better organization of the present service is of the highest importance to the future of co-operation and of Indian agriculture. India

requires a well equipped "Indian Co-operative Service" at least as much an "Indian Industrial Service" or an "Indian Chemical Service".

The Maclagan Committee has devoted a considerable portion of its excellent report to the organization of the higher official machinery of co-operation in There is no denying that the co-operative India. movement owes a great debt to the Registrars and other higher officials. But the time has come when there has to be arranged a systematic organization of an "Indian Co-operative Service". The essential for this is to make the department and the service a permanent one. It is needless to say that with the future development which awaits co-operation, the co-operative service will be one of the largest manned All will agree that such a service should include some of the very ablest men in the country, and that the better class of men will not enter a temporary department with all the uncertainty of prospects which it involves. Surely the co-operative department on which the prosperity of such a large part of the population of India depends should at least be second to no other department as regards pay, prospects or permanency.

But while advocating that the prospects of the "Indian Co-operative Service" should be much improved we would also propose measures by which the recruiting of the service should be most carefully conducted. The aspirants to the service should be regularly trained and then go through an examination. The course of study should include: (a) Theory and practice of co-operation, (b) Accounting, (c) English banking theory and practice. Lectures should be delivered on each of these subjects under the auspices of societies like the Bengal Co-operative Organization Society. The lecturing on the first head should not

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be done by theorists, but by experienced senior Circle Inspectors or Divisional Auditors who know as experts the practical side of the problems they treat. Similarly in the case of banking some officials of local banks should be assigned the task of lecturing and their work should be supplemented by instructions given by co-operative officials who have specialized in co-operative banking. It is after such a course of instruction that the candidates would go up for their examination.

The service should be more properly graded and more systematically graduated than it is at present. Thus we might have the following grades. Each succeeding grade being paid higher than its predecessor:—

Supervisors
Auditors
Circle Inspectors
Chief Auditors
Assistant Registrars

It must be borne in mind that we want the pick of our universities and colleges. Our class graduates who now start with such poor pay in the employment market would no doubt be willing to begin their fortunes in such a service. the future service the required solidarity it emphasizing that there should be no necessity transferring a man from the Co-operative Department to any other for his ordinary promotion. One the drawbacks of Indian services is the lack continuity and by the transfer of a man from one department to another the country loses the benefit of his special experience. An effort ought to be made to prevent such shunting about and to open up to men in the Co-operative Service the chance of rising by degrees to the highest rungs of promotion.

MODERN MERCANTILISM IN INDIA

PROFESSOR CHARLES D. THOMPSON, JR., M.A. EWING CHRISTIAN COLLEGE, ALLAHABAD

It is impossible to read the chapters in Haney's History of Economic Thought on Mercantilism and Cameralism without being repeatedly struck by the similarities between the conditions and doctrines of Europe three and four hundred years ago, and those of India to-day. It occurs to one that this is the Mercantile period of India's history of economic thought. (Her Physiocrats and her Adam Smith are still in the future). It seems to be well worth while to compare the similarities and differences and examine briefly the causes for those differences, and whether the same causes underlie the similarities.

As in India to-day, so then in Europe, increased means of transportation and travel had broken down narrow borders both political and economic. Wider markets gave rise to a money economy and wider military operations caused the fall of feudal principalities and the rise of modern nations.

To establish national pre-eminence larger standing armies and navies became necessary. These had to be paid regularly, whether taxes came in or not. Gold and silver were permanent funds of purchasing power. Also the precious metals were needed more than ever

before to supply the needs of a money economy. An increased supply of specie seemed the only supply of capital for industries. Thus gold and silver came to be considered by far the most important form of wealth. All nations tried to increase their supply of gold and silver which, lacking mines, they could only obtain by Foreign Trade, that is, by an excess of exports over imports, thus giving a Favorable Balance of Trade to be paid in treasure. Thus Foreign Trade was exalted above Home Trade from the belief that what one nation gains, the other loses. To maintain the favorable balance of trade it was only necessary, they supposed, to import raw materials which have low value, and to export finished products of high Thus arose the belief in the superiority of value. merchants and manufacturers to miners or farmers.

It therefore became necessary to stimulate to the utmost manufacturing industries. But since, as in India to-day, there was a great lack of technical knowledge and of individual initiative, state aid became imperative. Minute regulation of production was undertaken to secure goods relatively cheap, and yet sufficiently good for export. But industries were also stimulated with the idea of increasing the taxpaying power of the nation, (the importance economic strength being realized almost as clearly as Privileges were given to companies and import duties levied. If a nation had colonies, they were prohibited from trading with other countries, and used as a source of raw materials and public revenue. If not, more emphasis was laid on the development of natural resources and on public finance.

Lastly, they desired a dense population, both for the army and for an abundant labor supply. This they tried to obtain by inviting immigrants, caring for the poor, and prohibiting the export of grain.

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They all preached thrift and a low standard of living to reduce imports and leave a surplus for export. They preached that every man ought to work. They thought each nation ought to be self-sufficient although this is not consistent with an increasing foreign trade.

The great outstanding parallels to these Mercantilist ideas are found in India to-day in the continuous cry for government aid to industries, in the exaltation of industrial over agricultural development, and in the desire for export and import duties.

There is a continuous cry that without the help of the government nothing can be done. Without technical knowledge, the government must give assistance. Some use the parable of the cripple and the blind man, saying the people are crippled, the government blind, and the cripple must ride on the blind strong man's shoulders and guide both out of the forest. But more often the government is asked to provide the eyes also and lead the way in showing what industries will be profitable, and how they should be managed, and where the raw materials can Thus there is a constant demand for be obtained. state financial aid, state initiative and expert advice, state patronage, and state instruction along all lines of commerce and technology.

But on the other hand, there is almost no demand for the strict regulation and control which the Mercantilists advocated, unless it be in the demand for State railways which is as much political as economic. What demand for cheapness exists is to meet the extreme poverty of the consumers, rather than for export; and the demand for quality is for the sake of competing with imported goods for the favor of the wealthier consumers. Even in flagrant cases of adulteration and bad patent medicines, there

has been little demand for control, except where religious sensibilities were touched, until very recently. Much of the adulteration takes place in the case of raw materials and the export of these is not desired. As for the training of skilled workmen, the "industrious immigrants" from abroad are not wanted, at least not permanently. They are to be dispensed with as soon as possible. It is considered far preferable that Indian students should study abroad. But ignorant laborers must be taught in India, and for this the temporary importation of foreigners may be necessary.

Industry is invariably emphasized at the expense of Agriculture. Industry is to be protected, agriculture penalized by export duties, in order to stimulate industry. Some writers indeed state that labor for industries cannot be obtained unless labor-saving machinery be introduced in agriculture, or that there is no food for an industrial population until agriculture be improved; but the great majority seem to assume that if industries are stimulated agriculture will take care of itself. The example of England is too much kept in mind. The German mercantilists who did not expect (at that time) to get food or raw materials from colonies, paid more attention to their own natural resources. In India, also, there is almost no talk of colonies, and while figures of raw materials imported are often quoted with the assumption that they ought to be far greater, the urgent cry is that we should maunfacture our own raw materials. It is not realized that this demands the parallel development of agriculture. It seems to be assumed that if the raw products now leaving India were kept inside, there would be sufficient for the greatest possible growth of Indian industries. Urbanization is praised and ruralization decried. A few far-sighted leaders dread an industrial, capitalistic India, enlarge upon the evils of city life,

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and read the figures showing its effects upon national vitality revealed by the British recruiting statistics. But they are voices crying in the wilderness.

Among the methods of stimulating industries, those which overshadow all others in India to-day, as in the days of the Mercantilists, are import duties on finished products for protection against foreign competition, and export duties on raw materials and food to enable Indian industries to get them more cheaply. It is one of the most interesting parallels with Mercantilism, that while Protectionists have never demanded the limitation of food exports, both the Mercantilists of Europe and of India are agreed on this policy. The Mercantilists wished it in order to obtain cheap labor, and because the export of food was considered less profitable. The Indian writers emphasize the prevention of famine and the increased efficiency It is said that Colbert of labor. caused famines to become more and more terrible in France by the prohibition of the export of grain. In India the government always refused to stop grain exports on economic grounds, until the war threatened an unheard of rise in prices, when the limitation of export was adopted as much on political as on economic grounds. Outside of India economists have generally accepted the view of the principal writers on public finance that all export duties are crude and obsolete forms of taxation, except where the exporting country has a monopoly or fears the exhaustion of natural resources, and in a few other very rare and special cases. It was one of my own students who pointed out to me that an export duty on raw materials was nothing but a sort of inverted protection, having much the same effect in sacrificing agriculture to help industries as an import duty on the finished product.

even seems possible that the evils of an export duty on grain might be avoided by using a sliding scale, there being no duty when the price is low, and the duty gradually increasing with the rise in prices. The Mercantilists in England used a sliding scale for the import of corn (this of course decreasing as prices rose). In this they were wiser than the more recent protectionists. India can probably obtain all the good there is in protection and avoid most of the evils by observing the experiences of those nations of the West who have both benefitted and suffered from these policies. I believe this could be accomplished by keeping the general import duty fairly low and supplementing it by subsidies particular industries which should decrease tively to the increase in the size and strength of the industry.

In the second group of ideas, relating to the importance of Gold and Silver as the chief form of Wealth, the Balance of Trade and the exaltation of Foreign Trade over Home Trade, the agreement is not so unanimous. It appears that India's heart accepts the Mercantilist ideas, while her head argues against them.

Thus gold is not considered by any writer the chief form of wealth. It is recognized that wealth consists of the sum total of commodities. Gold is not considered as important as food. It is pointed out that the so-called "drain" is in the form of food which should have fed the poverty-stricken millions. It is said that the gold which comes into India is useless; only raises the prices, machinery would have been better. The students of India are far from being Bullionists. But even they cannot escape from the old glamor of gold. The first English Mercantilists who opposed the Bullionists (and argued

for the general as against the particular Balance of Trade) were officials of the East India Company who wished to bring gold to India. And India still desires gold. Nothing is so insistent in all the writings on currency and finance as the demand for an out, and out gold currency, as if no amount of food and machinery would secure the country's wealth without gold ready to be exchanged for it. It is stated that gold is loved, admired, and respected. That the flow of gold from England is unfairly checked. And if this is justified on the ground that it would all be hoarded in India, then hoarding is denied. When students first enter the economics class they are generally under the impression that there is a great annual "drain" of gold from India. They are amazed to discover that India receives some twenty millions of pounds in gold each year, even after paying the home charges. They then swing clear around and begin to exclaim how useless this gold is, to demand that the export of food be stopped, and so forth. But they still go on asking for a gold currency.

Yet, there is more justice in this position than might at first appear. There are two great truths in the Mercantilist position (with regard to gold) for which they are seldom given credit, probably because they themselves did not realize them. The first is that gold is a continuous unfailing fund of purchasing power, which is always necessary in conditions of economic uncertainty. And the uncertainty caused by continuous wars in Europe has been caused by drought and disease in India. The Mercantilists wanted a war-chest of gold, without which sudden attack or defence were impossible; their Indian followers ask for the Gold Standard Reserve, which is to be called upon for the financing of the attack

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in commerce and industry, for famines and buildings, and for the armies of education and sanitation.

The second of these two truths, which is as follows, is really the heart of the matter. India probably needs more actual gold and silver in proportion to the volume of her trade than she ever has before or ever will again. Cash payments have been substituted for payments in kind on a large scale. Credit instruments and bank deposits have not come into general use. With more barter or with more credit she would need less metallic money. The same conditions held true in the countries of Europe in the 16th century.

Another truth, generally overlooked or denied, lies in the Mercantilist idea of maintaining the balance of trade to obtain treasure. It is usually stated in text-books that the balance of trade cannot remain favorable, but must be alternately favorable (Or the statement may be corrected unfavorable. to apply to the balance of accounts in the light of England's continuous excess of imports). Nevertheless, the Mercantilists were successful in obtaining favorable balance of trade for years, and India has had an almost permanent inflow of gold, the years when the balance against her for the year as a whole being very rare But, in my opinion, the Mercantilists would have obtained their balances of gold as India has, even without the carrying out of their policies. Spain controlled the supplies of gold and silver. prices were always relatively high and those of the other nations relatively low. It paid her to part with gold until its utility became as low elsewhere as it was in Spain. So to-day with India. The world's production of gold must be distributed over the world until its (marginal) utility is about equal

everywhere. That is to say, the countries which mine more gold and silver than they consume should have a pemanently unfavorable balance of trade; and those countries which do not possess mines, or mine less than they consume, should have a permanently favorable balance of trade. India produces about one-fiftieth of the world's gold supply, her population is about one-fifth of the world's popula-So that if she were as rich per capita, as other countries her balance of treasure should roughly equal the other nine-fiftieths. And approximately it does. But India is not as rich as other countries so that she should not require so much. But as shown above she is just at that period when she requires the maximum metallic currency in proportion to her wealth. Probably she also requires more in proportion for jewellery than other countries. Thus her share of the world's treasure is more than proportional to her wealth and comes to her as a permanent balance of trade, equalizing her prices to those of the whole world.

The Mercantilists wrongly supposed this permunent favorable balance to be the result of their policy, because they believed that one nation's gain was another's loss. This is undoubtedly the feeling of India. Thus it is supposed that England's gain is India's loss. It is realized that individuals will not trade continuously unless both gain thereby, but the old feeling crops out in the case of nations. But it is by no means assumed that the gain is always with the "favorable" balance. India's unfavorable balance against England is indeed criticized, but India's favorable balance against the whole world is also criticized. The example of England has made many students think that an excess of imports is a source of wealth, and an excess of exports a loss,—which is of course the exact opposite of the Mercantilist position, but might be true for a gold-mining country. Those men are rare indeed who see, like the Hon. Pt. Madan Mohan Malaviya, that the development of industries will only increase trade, and that the increase of trade will be profitable to both nations, that the harmony of interests does not depend upon balances one way or the other.

The exaltation of foreign trade over home trade based on a false analogy from the case is also of England, and is entirely wrong when to India. Yet we have heard one of the foremost publicists of Northern India declaring that it is only foreign trade that increases the wealth of a country, while internal trade merely re-arranges the wealth that already existed. This is equivalent to saying that if Bombay and Madras and Bengal were seperate foreign countries (with export and import duties), the trade between them would increase wealth, but at present does not. But the re-arrangement of goods within a country may increase productivity, and permit new industries and new wealth, as much as their re-arrangement between countries, -especially if the country be a large one like India, with all sorts of climates and all sorts of products to be exchanged and utilized the most productive in without ever crossing her own borders. Nothing could be more inconsistent with the avowed aim of working up our own raw materials, and saving the cost of the double journey across seas. The strength of the feeling is probably due to the underlying idea that one can overreach one's neighbors, but cannot overreach one's self. But I suspect that this fallacy is largely the work of the British statisticians who are for ever using statistics of foreign trade per capita as

an index of prosperity and progress. Certainly foreign trade is relatively far more important to a small country, without great varieties of either climate or natural resources. But to compare Great Britain with India in this fashion we should divide India into six sections of equal population, and add to India's foreign trade all the trade between those sections counting it twice, both as exports and as imports.

The last nominal agreement with the Mercantilists, namely, in their desire for a dense population, may also be due to the use of statistics to illustrate the race for supremacy among the Western nations. Thus we find an eminent writer comparing the growth of population in India with that of Western countries, to India's disparagement. Here, too, the deep underlying feelings of race preservation and race increase must needs be powerful. But there is no desire to stimulate the growth of population as with the Mercantilists. Rather the evils of a high birth-rate and of child marriage are beginning to be realized, at least in theory; and there are not wanting signs that neo-Malthusianism may become a danger in the future.

For the remaining ideas, the Mercantilists would have praised highly the preaching of thrift, the compelling of every man to work, and the return to ideals of self-sufficiency, which the war has brought about in Europe and America; but in India the importance of saving is too little realized, self-sufficiency is not considered important in itself, and that every man should work is as yet the dream of an impractical visionary. A low standard of living is indeed desired by those who hold sacred India's name for spirituality, but by far the greater number are intent upon raising the standard of living both for themselves and for other people's laborers.

To sum up, we find in nearly every case some similarity of thought, and where there is a difference of thought, there is often a curious similarity of feeling. Constant comparisons between England and India (and that the England of to-day, not Mercantilist England) have often led to false analogies, which are now being corrected. Especially important are the differences which arise from our obtaining our raw materials at home, rather than from colonies. Neither do Mercantilists accurately understand the relations between gold production and prices, and the fact that the permanent favorable balance of trade may be almost automatic and stronger than government regulations. Nor do they understand that one nation cannot obtain for itself permanently what it wishes to withhold from others. A long-sighted view of the harmony of national interests in the long run, is something of which all men in all nations need to be convinced.

There is one important difference in motive which needs to be mentioned. The old Mercantilists were advocating all these policies for the benefit of the King,—ostensibly. The Modern Mercantilists propose their measures for the benefit of the people,-also ostensibly. There has been one great advance over the sixteenth century. Gold and silver are now clearly realized to be only a minute fraction of the sum total of wealth. The true wealth is thought to consist of lands, buildings, machines, and food and clothing. But if our study and our policies are truly to benefit the people,—the people at large,—we must take another even greater step in advance. We must teach that the true wealth consists neither in gold nor in goods, but in laborers, in the Bodies and Brains, in the Characters and Spirit of Laborers. Town-planners and Trust Magnates, Teachers and

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Doctors, and Workers for Child Labor-Laws are beginning to realize this. But most of our proposals sound like selfish materialism. It is a dull, long road to the real things of life,—the things which make for joy and beauty and true happiness in life. But the road may be much shortened here in India by avoiding the blind side-trails into which others, the pioneers, fell. We should look for their foot steps at every turning and see whether they have not left us a guide (either their success or their failure), by which we may go safely on. So may India's goal be reached the sooner, and she herself become a guide to others.

ECONOMY IN THE USE OF WATER FOR IRRIGATION

(SUMMARY)

E. A. MOLONY., I.C.S., C.B.E., J.P. COMMISSIONER, AGRA DIVISION

When the Indian cultivator gets water by flow from a canal he generally pays no heed whatever to economy in its use, but rather hopes to make up for scamped tillage by over irrigation. The present systems of distribution by direct flow from canals offer no inducement to economy in the use of water. It has been demonstrated by Mr. and Mrs. Howard of Pusa that the full produce per acre of wheat is not reached when the crop is given as much water as is usually given to it by cultivators who have command of flow irrigation from canals.

With a proper economy in the use of water not only would the produce per acre on the area now irrigated increase, but the water saved could be used for irrigating areas at present unirrigated; and there would thus be a double advantage. It is very much to be desired, therefore, that a practical module or meter should be devised by which the cultivator could be made to pay according to the amount of water which he uses. This would teach him economy. In some places, however, where conditions are suitable, it might be possible to encourage the cultivators to

increase the area irrigated from one outlet by charging a fixed annual sum per outlet instead of charging as at present on the area actually irrigated.

The object of irrigation is to get moisture to the roots of the plants. The present method of doing this, i.e., by flooding the surface of the soil is perhaps rather a clumsy and wasteful expedient; because, (a) it cakes the surface soil, destroys the mulch, and promotes the loss of the subsoil moisture by capillary action and evaporation; (b) there is a direct loss of water by evaporation during the process of irrigation; (c) the roots are kept near the surface; (d) aeration of the subsoil and the activity of the nitrogen fixing bacteria are lessened.

It is possible that these disadvantages could be obviated by passing the moisture directly into the subsoil by a number of parallel porous earthenware pipes sunk about 18 inches below the surface and 3 feet apart, and that a very considerable saving of irrigation water would thereby result.

DISTRIBUTION OF AGRICULTURAL HOLDINGS

E. V. SUNDARAM REDDY, M. A., B. L. HON. SEC., RYOTWARI LANDHOLDERS ASSOCIATION, MADRAS

The subject of the distribution of agricultural holdings has been engaging for nearly half a century the attention of those who have at heart the development of Indian Agriculture and the consequent prosperous position of persons carrying on this occupation, and it is a matter of great interest to find that recently in most of the Provinces the discussion of questions relating to the size and distribution of agricultural holdings has occupied the minds of some officials as well as non-officials. An important resolution was adopted at the Poons Conference, and this must have really prompted some of the non-officials and the local governments to find out how far it will be possible to proceed along the lines suggested by Mr. Keatinge, Professor Stanley Jevons or the Baroda Commission in order to remedy the present condition of affairs which is admitted by all to be such as requires the adoption immediately of suitable remedial measures.

The detailed investigations that have been carried out into the economic condition of some of the villages in the major Provinces point unmistakably

first to the existence of small holdings of a size which would not yield enough to support a family cultivating it with the aid of its labor and secondly to the extremely scattered character of the strips comprised in the present holdings. Owing to the increase in population and also to the systems of inheritance of the Hindus and the Mahommedans prevalent in this country, which in their attempt to carry distributive justice to its furthest limits adopt a system of equal partition and wide distribution of property among a large number of heirs, there is a constant tendency for holdings to be sub-divided. Besides this factor the prevalent practice observed at the time of partition of dividing each field among the co-sharers has resulted in the fragmentation of holdings in an admittedly undesirable manner. Numerous instances can be cited of families holding lands which may be said to be fairly sufficient for the maintenance of a family sub-dividing it, and at the time of such sub-division carrying it to the extent of sub-dividing each plot of land so that every one of the co-sharers may enjoy a bit of land comprised in the various plots which constituted the original holding. The problem, therefore, of the distribution of agricultural holdings may be stated to be briefly as follows: (1) How to prevent the sub-division of holdings below limits which will be regarded as economic; (2) how to bring together the scattered strips comprised in the holdings of a particular person.

The smallness of agricultural holdings and the tendency of these to be continually sub-divided under the system of inheritance prevalent in the country, and the stress of increased numbers depending for their livelihood upon land, attracted the attention of the Government in this country nearly half a century ago.

In a book published in 1903 by the Swadesa Mitran Press on Some Economic Aspects of British Rule in India the author of which was an eminent publicist who had devoted considerable attention to the study of economic problems, the subject of petty holdings in India was discussed at considerable length. The remarks of the Board of Revenue, Madras, made on this question of the continued parcelling out of landed property into minute shares about the year 1875, and later of the Madras Mail and the Times of India, were quoted with approval and the seriousness of the situation caused by the continuous sub-division of land was recognized. Remedial measures were also suggested.

In the year 1893 Dewan Bahadur S. Srinivasaraghava Iyengar in his Memorandum submitted to the Madras Government On the progress of the Madras Presidency during the last forty years of the British Administration referred to the fact that a large proportion of the cutivators tried to subsist on holdings much too small to support a family. It was pointed out by him that the total number of estates on this tenure was two million eight hundred and thousand and the number of owners including shareholders was four million six hundred thousand. acre under this tenure paid Rs. 2 including the cess, and the total number of ryots paying below Rs. 10 as land tax was 65.6 per cent to the total number. Thus it will be found at the time when this memorandum was submitted there were a little more than two-thirds of the ryots owning on the average less than five acres of agricultural land. According to his estimate, at least, eight acres of such land was necessary for a family to provide for itself the cost of subsistence.

The results of the investigation made by eminent persons clearly point to the existence of the evil in

an acute form calling for the adoption of remedial measures forthwith. Though it may be said that all these persons are more or less unanimous in admitting existence of these evils, there is considerable divergence among them as regards the measures suggested for remedying the situation.

Quite recently as a result of the discussion that took place in the Madras Legislative Council on the Hon. Mr. A. S. Krishna Rao's Resolution the Local Government referred the proposals of the Hon. Mr. Keatinge. and a letter of Dr. Slater on the subject, to the Board of Revenue, and the Board thereon referred the proposal contained in the Government Memorandum and the annexures thereto to the opinion of certain Collectors and Officials connected with the Departments of Agriculture and Land Records. Replies thereto have now been published and they constitute important series of documents containing as some of them do very valuable information obtained as a result of personal investigations on the part of these persons.

After careful consideration of the opinions of these persons and of the papers connected with the legislation proposed in Bombay, the Madras Government declared that it was not prepared to undertake similar legislation even in a permissive form at present. However, officers dealing with the darkhasts in the Presidency had been asked to take into consideration the desirability of creating economic holdings. Further the Board of Revenue was also requested to consider the possibility of carrying out an experiment for the re-arrangement of the holdings by consent in some typical villages in a district in which a special staff is engaged at Adungal revision prior to re-settlement. (The Adungal shows the various survey fields, the sub-divisions if any into which they are divided,

their extent, assessment, wet or dry, and the persons by whom each field or sub-division of a field is occupied. At the time of re-settlement a revision of such an account becomes necessary in order to make it correspond to the actual enjoyment by the ryot himself). It will be clear from the papers published by the Local Government that a more elaborate and sustained enquiry than was possible under the circumstances and within the limited time permitted for them to reply to the reference made by the Board of Revenue, was imperatively called for.

The problem of distribution of holdings is really one of remedying the conditions which necessitate the ryot at present remaining in a position where effective agriculture is impossible. I recognize that the distribution of agricultural holdings at present and the danger of further sub-division and fragmentation due to various causes like the pressure of population, the system of inheritance, the law of partition and the defective social economy, under which it is possible for a considerable amount of idle labor to make itself a burden upon labor which is actually and usefully employed, demand serious attention before the problem of the poverty of the ryots can be solved. . . .

It would be fallacious, however, to assert that the problem of Indian poverty can be successfully tackled with by devoting our attention to the distribution of agricultural holdings alone. Other factors also, upon the successful combination of which the productivity of agriculture depends, must be taken into account at the same time. Indian publicists are apt to believe that the poverty of the ryot arises out of a faulty method of distribution. Those who are opposed to this school of thought contend that if an Indian is poor the reasons are a failure on his part to produce

enough for himself, and his extreme inefficiency. They further contend that his methods are ancient and primitive and are not likely to draw the utmost out If I may indulge in an expression of personal opinion, I think that faulty methods distribution as well as production have combined together and perpetuated a condition of society in which the ryot had to content himself with a decreasing lower standard of life, and those who could not easily pass off into the conditions of a lower strata of society and adopt a lower standard of life became indebted and so we have the extraordinary situation that conditions of agricultural society point to the indebtedness of most of the ryots and their inability to ward off times when a temporary scarcity due to the failure of the monsoon may occur.

For the purpose of this paper, it is not necessary for me to go into the question as to how far Indian poverty may be a result of the present land revenue policy of Government. I may at once state that the present condition of our agricultural society can be a great deal improved by carrying out the desirable changes in land holding and the creation of other necessary facilities for successful farming.

Recently I had occasion to visit some of the villages in the South Arcot and Tanjore Districts with a view to finding out the attitude of the people towards the various remedial measures suggested and to see how far they would be welcomed by them. My impression is that they do not seem to realise the urgency for any remedial measures to be carried out in connection with land holding, but what they mention to be of far more paramount importance are the supply of more water, a system of agricultural banks by which capital for the cultivation of land may be available at hand under easy conditions, and

the modification of the present Land Revenue policy. At the same time they recognize that the evil of minute sub-division of holdings, below limits where the latter cease to be economic in the sense that they are insufficient to maintain a family, exists, and that the fragmented and scattered character of the strips comprised in the holdings is really a hindrance to some extent to effective cultivation. T the words "to some extent" advisedly, for they think that it is an advantage to have the holdings scattered in two or three places according to the fertility of the soil and the facilities of irrigation enjoyed by them where such are of unequal character. ideal of a single consolidated holding does not seem to be practicable, but consolidation can be carried out as far as possible so that each man's holding may consist of two or three separate blocks as the situation of each village may require. It will be obviously inadvisable to aim at any uniformity in the methods to be adopted for consolidating these areas. mere work, however, of consolidating them and of devising such laws as would prevent their sub-division below economic limits would not go far enough towards removing the hindrance to effective farming. No doubt it would obviate many of the evils incidental to the present condition of land holdings, but unless the question of increasing the facilities for irrigation and making water available to the ryot in a more certain manner is attended to at the same time the movement for the constitution and preservation of economic holdings as well 88 for their consolidation is not likely to meet with any warm or any enthusiastic support by the persons in whose interest these measures are sought to be devised.

I am satisfied from the enquiries that I have been making recently that there is a danger in looking

at the agricultural problem from any specific point of view without taking into consideration at the same time the other factors relating to it. It is not sufficient that attention should be devoted to the size and distribution of holdings alone. It is also necessary, when we are considering these as hindrances to agricultural progress, to find out what other factors or causes are responsible for preventing the ryot from using his land to the best advantage of himself, his family and the state. Such a comprehensive survey of the conditions in a number of villages seems to me absolutely called for, before the present admittedly back-sliding position of the agricultural population can be effectively explained. The present position is that the average area of the land enjoyed is less than 5 acres, and at the bottom of the agricultural class of the population it is much smaller. Without entering into a discussion of the relative merits of large and small farming it may at once be said that such a holding is hardly sufficient for maintaining a family, and yet the danger with which we are threatened is that even this present size of an average holding is likely to be diminished under the various forces which are tending towards a constant diminution of the size of holdings in India. Of these forces that are responsible for this process of subdivision, the increase in the population, the Hindu law of equal inheritance, the Mahomedan system of inheritance which favors wide distribution of property, the esteem in which the occupation of agriculture is held by the people, the absence of other occupations. and the joint family system with its defective social economy, play a prominent part. It would be some consolation if only a sub-division of holdings took place and the holdings so sub-divided were constituted in a compact farm. As a matter of fact, however, these holdings comprise fields scattered in different places, often of sizes much below an acre. The problem therefore is to find out how exactly this infinite process of sub-division could be prevented and secondly how to bring together these scattered strips comprised in the holding so as to secure as far as possible consolidated areas which will facilitate effective cultivation.

The Board of Revenue in answer to the Government Memorandum sent to it with regard to the subject after consideration of the papers received along with that and the opinions of persons who were invited to consider the matter have come to the following conclusions. Before them they stating examined the figures relating to holdings in Faslis 1310 and 1325 and found that the figures referred to in their enclosure regarding the number and extent of agricultural holdings in the Presidency for the years given lent considerable support to the view that of these holdings a great proportion were uneconomic from a purely agricultural point of view. They were careful to indicate that there were a number of factors which ought to be taken into account in considering the figures therein given. They said: "It is often the case, for instance, that a man holds one puttah and that a joint puttadar has also a puttah of which he is the sole owner; it is impossible to know how many persons the average puttah holding is intended to support; the figures take no account of under tenure holdings; and it is well known that most of the smaller ryots have subsidiary occupations unconnected or only remotely connected with agri-It was, however, admitted by them that there was a tendency on the part of smaller holdings to become even smaller, and the figures relating to the holdings given by them indicate that. The first minute sub-division of agricultural lands exists, and

that there is tendency for these smaller holdings smaller to become even and that A. large proportion of these holdings are uneconomic. Secondly, referring to Mr. Keatinge's bill they consider that the bill is open to strongest objections and the more obvious of these have been enumerated bv them.

With regard to two other proposals contained in the Government Memorandum, as to the amendment of the darkhast rules so as to impose on land hereafter assigned a condition of impartibility below a certain limit and the remission of stamp duty in the case of those who consolidate their holdings by voluntary exchange of their lands, the Board of Revenue has reported against the changes suggested. With regard to the former they state that the proposal is impracticable and inexpedient. As regards the latter they state that the inducement offered will be ineffective. Mention has already been made of the Madras Government's order on this report, and the action thereunder which will be taken in some of the villages where re-settlement is to be carried out will be watched with keen interest, not only by those in this Presidency, but also, I believe, in other Provinces as well. The Government has not, however, done all that it might be expected to do with regard to this matter under the present conditions and circumstances.

I have gone carefully through the entire correspondence contained in the papers placed on the Editor's table by the Madras Government with regard to the subject and it is somewhat difficult for me just now to lay before you a complete analysis of the position taken up by different persons to whom the matter was remitted for enquiry and opinion. I may, however, take the liberty of stating briefly the general results to which I think the correspondence

would lead. I think it is fairly well admitted that the refusal to recognize sub-divisions of fields below a certain limit by the Revenue Department or the withdrawal of the powers of the courts to recognize such sub-divisions would only result in preventing the revenue records from being records of enjoyment and the courts themselves not placed in a position to settle disputes as to possession and enjoyment. The suggestion, therefore, that subdivisions of fields below certain limits should not be recognized either by the Revenue Department or by the courts has rightly not found favor with them. Almost all the persons are agreed that the evils complained of do exist; but some are content to rely upon the common sense of the people to act as a deterrent in the matter, and some are content in the belief that the spread of education, industrial development, and the consequent opening out of new fields for employment, would diminish the forces or circumstances which are responsible for this process of sub-division. From the reports of the Collectors, it is apparent that in the case of some of the ryots consulted, at any rate, state action would be welcomed.

The question of preventing minute sub-division is no doubt a difficult one, but after some further detailed enquiry I think it would certainly be possible to find out what exactly are the measures that may be necessary to be adopted in different localities with a view to secure the desired result. Theoretical considerations as to how any legislation undertaken will affect the people may not be of very great importance. So far as the work of consolidation is concerned the experience of the staff which may be entrusted with the work of re-arrangement of holdings by consent in villages which are shortly to come under re-settlement will be of the utmost value, but

the Government will be well advised in associating a few land-holders with the special staff in carrying out this very delicate task. Also it may be suggested that the cost of such re-arrangement, at present, when the whole thing is in an experimental stage, must be met by Government itself. If then, the experiment is found successful it may be possible to extend it and to make it "beneficially compulsory."

Once the work of consolidation is carried out it necessary to devise measures becomes to such consolidated areas intact; or at least to prevent sub-division when allow from to be to create uneconomic holdings. would T afraid that this cannot be done without necessarily affecting the ideas of the people as to inheritance. It is true that such a change is best brought about by the people themselves, but the Government have responsibilities in the matter; and where it is a question of saving the ryots from a difficult situation every attempt should be made to educate the ryot to his position so that he may see the reasonableof any measures that may be suggested to alter existing conditions. In this connection I would refer to the letter of Dewan Bahadur L. D. Swamikannoo Pillay (the Collector of Nellore) addressed to the Board of Revenue. He says "the subject is great economic importance, but doubtedly of promulgation matters now stand the of legislative measures on the subject would have to be preceded by very wide publication of the intentions of the Government, and the concurrence the nonofficial members of Legislative Council constituents would have to be and their secured that before as far as possible. It seems to me any such measure can be proposed, the main issues would have to be placed before the public or at least

before leading nonofficials in some direct or indirect manner, so that the views of those concerned might readily ascertained". With regard Mr. Keatinge's proposed bill he would recommend a system of nomination by the holder of land as to who his successor should be 1: and in the event of no nomination being made by during his life time he would propose that in order to obviate the evils of litigation which would weigh most heavily upon such small proprietors the selection of a successor to the vacant piece of land might he left to some local tribunal preferably village panchayat. While the this former part of recommendation is likely accepted to be bν including those who may at present oppose the bill as a very desirable change in it, the latter does not seem to me to be a very desirable provision for adoption, as it carries with it the danger of injustice unless the panchayats being done such are may be expected to administer such a duty justly. He is of opinion that if the measure necessary, it would have to be made compulsory after obtaining the concurrence of a certain number of persons among those concerned.

It is unnecessary for me to consider at present the various objections raised against Mr. Keatinge's proposed legislation. They run on more or less the same lines as those urged against it elsewhere. What exactly is the legislation that it is desirable to adopt may be determined upon, after verv consideration of the question. The material available at present though it strongly points to the existence of these evils in an intense form is not sufficient to determine what remedial measure is suitable for any particular locality. The preliminary of a detailed

1 Though Mr. Keatinge's Bill does not contain such a specific provision. clauses 10, 16 and 18 read together contain such a provision implicitly.

enquiry into the economic history of several typical tracts, and experiments made to carry out the work of consolidation in places where such could be done with the willing consent of the people, may help us a great deal in finding out what exactly must be the lines of legislation for securing the minimum limit beyond which division of a holding must rendered impossible. 1 I think there may not much difficulty at all in arriving at a figure, though this must necessarily vary in different places and in different times according to the variation in standard of life of the people concerned. That not an insuperable difficulty at all. The real difficulty, however, lies in the systems of inheritance with which we must necessarily come into conflict and the defective social economy under which it is possible for great deal of idle labor depend upon to produce earned by others. Ideas with regard to both of these must be changed and whatever measure may be adopted cannot bear fruit without an "active campaign of enlightenment" and a necessary change in the attitude of the people towards these matters. At the same time it may be necessary for us to consider the need for a revision of the land revenue The provision policy in rvotwari tracts. irrigation, thereby making creased facilities for the ryots more self-reliant and less dependent upon uncertain rains, the creation of banking facilities to suit the small farmer, the development of industries subsidiary to agriculture which would employ the man in the village in his own place without necessitating his going out of it to any considerable distance during times when strictly agricultural work may not be available to him, and the laying out of roads

¹ In the strip of alluvial soil lying between the Pennar and Oadilam rivers in South Arcot District this limit may be fixed at one acre wet and two acres dry or the equivalent.

connecting the village with the towns and in the village itself connecting the place of the abode of villagers with the fields so as to render the transport of produce easy—unless these things are done any attempt merely to secure compact holdings and to prevent the ryot from sub-dividing his holdings below a certain limit would not improve the situation at all to any appreciable extent. As I said before the ideal of a single consolidated holding is impossible of achievement. All that could be done is to secure a holding distributed in as few places as possible; and if this is recognised I think the work of consolidation could be carried out with the help and willing consent of the villagers themselves. the conclusion which forces itself upon my mind from the interviews which I had with a large number of landholders. If, however, any attempt is made to force all the wet lands which a man may own into a single holding it may be resented. just now, the real reason being that these lands are not of the same fertility, nor do they possess equal facilities of irrigation; but they will be prepared for a consolidation which will secure their wet holdings in two or three blocks instead of their being at present scattered in a large number of places much more than what would be required by them so as to secure the advantage that may be derived by owning land under different sources of irrigation. Even with regard to this matter, if greater facilities could be secured to all the lands in a village it is just possible that the villagers would be quite content to have all their lands consolidated in a block. That is why I laid down as a necessary corollary to any work of consolidation that the creation of facilities for irrigation should be seriously taken into consideration. If this is attempted along with it the process of consolida-

tion will be much more easy and much more complete. When once the work of consolidation is effected, it becomes necessary to see that the permanence of the result is secured. If the present system of inheritance is not to be affected at all in any way, as regards land holding, the whole labor in consolidating is wasted.

In an address delivered by the Hon. Mr. S. Srinivasa Iyengar, the Advocate-General of Madras, before the Annual Gathering of Vakils in the year 1909 he pointed out that any real reconstruction of Indian society cannot be achieved without the edifice rising to an equal height at the legal corner. The hand of the past lies heaviest upon us in respect of legal institutions; and without fresh ideas in law or a fresh group of older ideas, without a fresh momentum of the legal forces, it is idle to expect any striking advance in other directions. Further on in the same address he pointed out: "we all fervently wish that there were some enterprise industrial and commercial and consequent increase in our national wealth and in our standards of comfort, yet the Mitakshara joint family law, substantive and adjective, offers no inducement to enterprise but acts on the other hand as a powerful brake. There is no reason, therefore, why legal problems, the reform of the Jurisprudence in our country, should not engage our attention". his opinion first in importance was the need for the reform of the Mitakshara system of holding property. He said, "we should substitute for it a property law similar but not identical with the Dayabhaga system. The least that ought to be done is to abolish coparcenary property with its incidence of survivorship and to completely obliterate the owner's right by birth, and he considered that the undoubtedly greater prosperity of Bengal was mainly due to the prevalence

there of the Dayabhaga type of Hindu law". is hardly the place to discuss in detail the advantages which could be derived by a modified system of the law of inheritance as regards land holding, but if, after careful consideration, we come to the conclusion that for the economic development of the agricultural class, it is necessary to modify the system of inheritance and partition slightly so as to prevent the sub-division of land when it is likely to lead to the creation of uneconomical holdings, it is our bounden duty to carry out such legal reform and I am satisfied lay the foundations for true progress. that if the matter is put seriously before the ryot in the village in whose judgment and wisdom one safely place trust and confidence. the ideals The responsibility, however, of will find acceptance. laying these before the ryot rests on us and we should not shrink from it, because some persons may be found who desire that the ancient law should be left intact and that no modification, of however limited character, should be made in our laws and institutions.

THE RELATIONS OF

ECONOMICS DEPARTMENTS

TO THE

ECONOMIC PROBLEMS OF INDIA

PROFESSOR H. W. LYONS, M.A. CHRISTIAN COLLEGE, INDORE, CENTRAL INDIA

I make no apology for introducing an educational topic before this conference. Many of us must return from here and interpret what we have heard and learned to our students. I covet, also, for the undergraduates in our colleges no small part in bringing about the advancement we have been planning. purpose is not to discuss the relation of professors of economics apart from their students to the problems that surround us. Most of us, I presume, have opportunities of private research, and association with those in authority, where our advice and leadership are welcomed. Nor do I intend to refer directly to schools of economics who specialize in the subject. The real crux of the problem lies in the relationship of the professors of economics together with the B. A. students in their classes to the vital economic questions of the day. In discussing this I shall apply the term Economics Department, therefore, to professors and undergraduates.

What shall we say of the present relation of our department to the actual problems of economic life

in this country? Is it in any way connected with the practical needs of the people amongst whom the students live? Are the students themselves inspired by their study to a true understanding of, and to a healthy desire for the solution of the problems of the people? Or do the majority of them study economics because they consider it comparatively easy, and because it is necessary for the all important degree with which to solve their own economic difficulties? How much individual research, important or unimportant, will a student do outside the requirements of the curriculum?—for this is a real test of their interest.

Let us apply the standard of the three H's to our teaching-"Head, Hand and Heart." The annual results of the University examinations, with the great majority of passes in the third division, is, I take it, sufficiently indicative of the fact that we are not meeting with overwhelming success in our purely intellectual endeavors. One reason for this on the Bombay side at least is the failure of late years of the students to speak English outside the class room, with the inevitable decline of their knowledge of the language of our instruction. Only recently I discovered a fourth year student spelling machinery "machiary", and a third year student who declared that the word "salient" and "hit aunt sally on the koko" were from the same root! Another and 8 deeper reason is that the majority of our students, because of their caste, know nothing and care little about the practical industrial and commercial life which forms the basis of most of our economic theory. The whole philosophic outlook of the student is opposed to his acceptance of the subject as of vital social importance. I know many who talk a great deal; but if the subject does assume any real impor-

tance for the average student on this side of India at least, it is too often because he dreams of winning an immortal name by producing another superficial text book or crib of a sort of which there or already too many; or because of the political possibilities contained within it.

Our duty as educationalists, as I conceive it, however, is not confined to the attempted intellectual training demanded by the university curriculum, and tested by examinations. It is not confined to the intellect. There is the education of the hand. suppose few if any of our arts colleges are equipped for technical education; nor can technical training under our present overcrowded time-tables be given even where agricultural experimental farms, art institutes, or industries are available. Bnt there is an education of the hand possible within the limits of the time-table—the making of survey maps, and of graphs; the study by actual investigation of how the people of the college town are fed, are clothed, are housed,-upon which the study of consumption may be based;—the collection of family budgets; the study of the road traffic in and out of the town or city by tabulation, and much of the village work Professor Kale has advocated. There is in all these a training in observation, in accuracy, and later in interpretation, in which the average arts student is notoriously lacking. Why should this training be reserved for the M. A. students or for those in special institutions? From practical experience with individual students in our own college, I know that the undergraduate in economics can do all these things and likes doing them, if given the necessary time and guidance.

Are we educating the Heart? Are we developing such an interest and a sympathy in our students

that in after life they will devote their fine energies to the bettering of the economic conditions of their country? Are we inspiring these young men, who by reason of their education will be leaders in India, with high ideals, with an intelligent yearning for the development of their country along sound lines; and with the conviction that the responsibility for that development rests upon them? Yet surely that is the work of a university, and a work that is of fundamental importance in India of to-day!

Or let us look at our problem from another standpoint. What place does the economics department in our several Arts Colleges, with its students and professors, hold in the life of the people surrounding it? During the Diwali vacation this year I spent a fortnight in a dâk bungalow at the top of the ghats which lead to the Malwa plateau. before was I so profoundly impressed by the needs of the villagers. The epidemic of influenza which was at its height, was raging through the villages surrounding us. From the largest one, with a population of about a thousand, five or six bodies were taken to the funeral pyres every day. Our nights were broken by the terrible coughing in the gwala village We did what we could with our just below us. own small medicine case, and later with medicines we secured from Indore. Our biggest problem was to induce our patients to take the rest so essential to the successful combatting of the disease. water carrier gave the reason, when he was still weak from the fever and the racking of the cough. had told him not to work for a day or two more. "My belly is empty, yet you say rest, rest." And he and others like him either died or went staggering on with their work, for they were sick and hungry, and there was no one to heal them or give them

food. What have we in our Arts Colleges to offer, to contribute to this fundamental problem of health and strength, and of the poverty of the villager? What have we to offer to these men upon whom much of our economic superstructure is built? Are they to have no more human interest for us than that "economic man" of the class room? Are we simply to remain with our students in the class room and weave theories about their place in the economic life of the country?

Within our college towns themselves do we mean anything to the workers at our doors? What do we do, through our students, for the chawls of the cotton mills where plague walks triumphantly so often? What do we do for the carpenters and masons, for the gwalas, the chamars, who live too often in filth and squalor, content to spend their money on feasting or drink? We live surrounded by the City. Are we of it, or apart from it? Do we contribute directly or indirectly not in a mere amiable philanthropic way, or in spasmodic bursts of zeal for social service, but as serious students of problems which have their roots in the common places of common men's daily work?

I admit that it is not possible for students when undergraduates to contribute a great deal towards the solution of these and kindred problems. My students tell me that people in gwalatolia—the slum district opposite our College—resent their presence amongst them. They cannot do great things. But should we calmly accept what too often is the student's position: if it is not great, it is not worth doing? It is not possible to go into the villages to conduct demonstration farms; nor to introduce new methods of training to the chamars. It is, however, possible to conduct anti-malaria demonstrations in the villages; to organize consumer's leagues amongst the factory workers; and to provide

the artizans with more healthy and educative modes of recreation than toddy drinking.

Let us first consider some opportunities for the economic student's practical work in the villages. The ordinary villager in India is generally ready to listen to a student; he is eager to look at pictures. I remember one night at Maheshwar, on the Nerbudda River, sitting in a tent crowded with villagers and townspeople. We were at a moving picture show. The first film broke at least twice every minute, until the operator became weary pinning it together; and all the films were of the penny dreadful variety or Western love stories. What amazed me was the patience, the good humor, and the breathless interest of the spectators. We left at midnight; they remained two hours longer; and they had been doing so every night for two weeks.

The student with the lantern—and with models of implements, commercial specimens, and medical exhibits, all the result of personal investigation and preparation—would be able to demonstrate the construction and use of improved implements approved by the agricultural departments; the importance and the methods of the prevention of malaria, enteric, plague, cholera. They would be able to discuss co-operation, and improved housing; and spread amongst the cultivators a wider knowledge of markets. Not least important would be the literature, prepared by themselves under supervision which they could distribute.

The time has come when more active steps must be taken to help the villagers. The method of the primary schools is necessarily show, and much of it unsuited to the ever present problem of getting food enough to keep body and soul together, which is of first importance to the cultivator. The method of pictures is more rapid, more persuasive, and addressed not only to the child but even more to the adult.

I believe also much may be done for the permeation of new ideas, for leavening of the great mass of conservatism, by gathering groups, larger than 100, of headmen, leading cultivators, etc., into conferences in model villages in centres where there are experimental or demonstration farms, and leading physicians and others fitted to lecture upon village problems. Within ten days by a carefully prepared program much information and practical teaching could be given, and a nucleus of progressive men gradually secured in each village. conferences the economic students again might prove invaluable, not only by their lantern lectures, but by private conversation and discussion which is usually so necessary to transform knowledge into resolution and action.

All Arts Colleges, however, may not be able to relate themselves in this way to the village problem. Because of their situation or their inclination they may wish to devote themselves to industry, or to the economic aspects of civics. The technical departments of industry offer no opportunity for student endeavor, unless it be in the handicrafts which are still extant in every centre. In co-operation with Government departments students might accomplish something in the direction of co-operative purchase of raw materials and of sale. A commercial museum of the type so often met with in Japan might in time be built up, exhibiting the products of the industries of the town or city, serving not only as a means of education to visitors to the "wonder house", but also forming a useful guide to intending purchasers. This should prove particularly valuable when tourist traffic is again resumed. The small economic museum we have been building up in our own college has already attracted visitors who have heard of it

from students. It is hard to tell whether the student who explains the exhibits or the landowner who asks the shrewd questions gets most good from it.

It is, however, with the human element again that the student's greatest opportunity lies. I have sometimes wondered, in these days of high prices, if it would be possible to organize consumers' purchasing leagues upon the basis of the caste organization. The extravagance of the poor, unavoidable in small purchases, works with great severity in our cities. If purchases could be made by the brotherhood a considerable saving would result. The feasibility of such a scheme might well be a subject for student investigation; and if possible, for student action and leadership.

The increase of the health and efficiency, the conserving of the life of the working population, appeals to me as one of our great and most difficult problems. For example, in the city of Indore, which is commencing industrial development, Prof. Geddes has pointed out in his Report on the planning of the city that the expectation of life is only a little over 18 years. My own, so far incompleted, study of the birth and death returns in the Indore Residency shows that over 50 per cent of the deaths are of people less than twenty years of age. The average productive period of the working classes is very short; and it would be an interesting study for Indian economists to determine whether in this fact rests the cause of the poverty of India, rather than in some other reasons to which it is frequently assigned. Were the life of the workers of India increased by only one year the resulting surplus production would be sufficient to pay for the vast schemes outlined by Prof. Jevons in his paper read at this Conference. Yet we are sometimes told that disease is not an economic problem!

Why should not economic students make the solution of this great problem of the conservation of human Here they can again bring the life their own? lantern to their aid, they can make their anti-plague demonstrations; they can give their medical exhibits; they can organize "clean-up" movements. By leading public thought, by formulating public opinion, they can prove themselves of no mean service in combatting our greatest enemy-disease. There are many other agencies which ought to do this work, but the economic department in these days could ill afford to evade this responsibility as thoughtful students of these pressing needs.

Should you consider the establishment of such a relationship between our colleges and the economic needs of the people, to be desirable, is this scheme of practical education which I have outlined practicable? I submit that it is.

The essential apparatus is a lantern. stereopticon lanterns are on the market; and portable moving picture machines will be procurable shortly at reasonable prices. The cost of the carbide and other running expenses can be covered by a levy upon the village of the exact amount required, payable in advance. Such a policy has been followed successfully in the villages of China; and as I have heard, in some districts in South India. The real difficulty is with the films. Slides are more readily obtainable: but films would have to be manufactured. Films for such work as this are prepared by the Y. M. C. A. in China. Could they not be prepared in India by a co-operation of the economics departments of the several universities, and issued to the colleges within the jurisdiction of each? Such practical development is not outside a university's function, as has been successfully demonstrated by universities in the

Western States. Would the students co-operate? I feel confident that those who have a real interest in economics and in their country would do so; and that such a development would lead to the presence in our colleges of students specially selected by Native States to study these practical problems. I found a ready response on the part of several of my students to the suggestion in our Economics Club to carry on extension lantern lectures as a part of the work of the club. We are now giving fortnightly lantern lectures to secure funds to purchase sets of slides for this purpose. The great difficulty is, however, that the men who realise the value of such work are fourth year students who are living in the shadow of their B.A. examination, and all of us have reason to know how all-enveloping and impenetrable that shadow is.

My proposal would involve the addition of at least another year to the usual two year course in economics-in the University of Allahabad, for instance, the putting of economics on the course for the Intermediate examination. The work of the years could be divided as at present; but the work of the final year would be essentially practical field work of the nature previously outlined. Such work should form the basis of a B.A. thesis; but most important would be the estimation of the ability of the student, of his real knowledge of economics, by the professor who had directed his work throughout the Such an estimation would be invaluable in directing student's attention to suitable lines of work in after life, probably relieving the present pressure of applicants for clerkships in government offices.

In order that such estimations might be done on a fairly uniform basis, and in order that such an innovation in teaching methods might be successfully introduced, it would be necessary for the university

departments to maintain a much closer connection with the colleges than they usually do at present. Ill-advised meddling into village and city conditions, and masses of ill-assimilated information based on superficial investigations, or else a relapse into a complete coma induced by the bewilderment due to the absence of the comforting paternal direction of a prescribed text book, would be the result in many cases, unless the university department gave to the college department more frequent inspection and co-operation. Such a relation is surely not impossible!

A further objection which would be urged in North India at least is that in the first or second year in student's knowledge of English is not arts the sufficient for him to understand economic theory. Graduates of some years standing have commented to me upon the decreasing knowledge of English amongst the students. They place the responsibility upon the fact that amongst themselves students do not customarily speak English, even around the college buildings. This is a natural outcome of the nationalist movement, with its emphasis upon the vernaculars. Personally I think part of the blame can be placed upon the English courses. When a university will put Rip Van Winkle upon both the Matriculation and B.A. curricula, and demand that Indian B.A. students should understand Scotch dialect and the pidgin English of a San Francisco Chinaman—the responsibility for failures is not wholly upon the luckless student, or the still more unfortunate teacher.

However, admitting the fact, I do not regard the deficiencies of the second year student's English as an insuperable difficulty. Indeed there is one great advantage. It will compel the lecturer to abandon complete dependence upon the dictation of notes, and to resort to a practical teaching of theory. For

instance. I have based my teaching of the theory of consumption—a subject often imperfectly understood, and to which too little importance is often attached -upon the facts of the food consumed in Indore, facts ascertained by the students. As a result we have a small museum, the basis of which is food specimens, developed into facts in regard to agriculture, prices and wages, family budgets, and so on. Similarly the foundation for production is laid outdoors in the practical planning of something; and in visits to industries. The theoretical teaching is developed from this. As a result it is rare to hear a student say: "Not understood, Sir". The results, it is true, come very slowly. Some students long ardently for the comfortable old way of pacing the hostel verandah with a note-book in hand, chanting aloud the noble and infallible words of a text book, or memorizing a professor's notes. At times a teacher is apt to wonder if indeed it is worth while. But when the results do come of an education of the mind rather than of the memory, they resemble the quality of mercy in that they bless both him who gives and him who Moreover there is fostered at the very takes. commencement of the course a training of the hand which may with patience, sympathy and tact result in the opening of the heart. To introduce economics earlier in the course to my mind is not simply feasible: it is desirable.

Gentlemen, I am not advocating the abolition of the present groundwork in economics. I contend that the students and the country have the right to a building upon that foundation which under present conditions neither satisfactorily receives. I shall be accused of advocating social economics. The accusation would be true. But it is essentially social economics that India needs to-day.

THE RURAL LIFE OF CHOTANAGPUR

PROFESSOR P. C. BOSE., M.A. ST. COLUMBA'S COLLEGE, HAZARIBAGH, BIHAR

It is hardly an exaggeration to say that India is a continent of villages. Only one-tenth of the total population of India is urban, while the bulk of the people live in villages. The study of some rural part of India is of immense importance to a student of Indian Economics, because it is the material condition of villages that can give him a true account of the exact material condition of Indians.

Chotanagpur or more strictly Chutianagpur, is a division of the newly created province of Bihar and Orissa. It occupies an area of 27,077 square miles. In this area there are only 14 small towns, while the villages number 24,789. The villages constitute nearly 96 per cent of the total population. The average number of houses contained in each village, is about 40; while the average population of each village is about 200. In a comparison with the statistics of Bombay, we find that an average Bombay village contains at least 200 houses, with an average population exceeding 600.

In Chotanagpur, there are many groups of houses, which are rather hamlets than villages proper Big

villages are rare. It is only in the neighborhood of collieries and mica mines, that we come across villages containing a population of some five to six hundred. In some localities, the total population of a village is only 60 or 65.

The surface of the land of Chotauagpur is broken in many places. "There are hills everywhere, grouped in range after range or rising up abruptly a thousand feet and more out of the surrounding level, thrown up like watch towers over the land." The hilly tracts are covered with jungles and intersected by ravines or open valleys.

In a village there is a long row of houses, sometimes there are two rows in opposite directions. The site of a village is generally marked by some ancient tamarind trees. Mango and jack fruit trees with clusters of bamboos form a pleasing sight.

Nowhere is the heterogeneity of the people so conspicuous as in the Chotanagpur villages which are the residence of aboriginals, or semi-aboriginals (like the Hos, Mundas, Oraons, Santals or Kols and Bhuyias) and Hindus of various castes, like the Kahars, Lohars, Dusads, Burhis, Telis, Koiries, Kandus, Brahmans and Rajputs. Weavers known as Jolhas constitute the Muhammadan element.

The residence of a villager consists on the average of two or three rooms. The houses are generally single huts. The building materials are principally earth, posts and 'khapras'. Sometimes there are thatched cottages. Watertight leaf-houses are not rare. Brickbuilt houses are seldom seen. The houses of the richer class of peasants are roomy, and there are verandahs and granaries.

The special feature of every house that will strike even a casual observer is the absence of windows. As a rule not a single window can be seen in any

villager's house. This is perhaps meant to protect the people against gusts of winds and the severity of winter. Sometimes there are holes in the walls to let in light.

Dirtiness is the handmaid of poverty. Absence of cleanliness is very conspicuous in many villages. This may be due to the difficulty of procuring water.

Land is divided into two broad classes (i) Don or wet land (ii) taur or upland, fit for dry cultivation. Don lands are sub-divided into three or four classes according to the amount of moisture they retain. The upland is subdivided into: (1) bari (2) bahirbari or maruabari and (3) taur proper.

The ground around the dwelling bouses is known as bari land. It is fenced and constantly manured. It produces maize and vegetables. The marusbari lands are contiguous to bari land and are devoted to the cultivation of marua, lotni or rakar. The taur land is further off from the maruabari, and only precarious crops are grown on this land. In the case of very poor people, there is no land outside the bari plot.

The agricultural yield is divided into three classes (1) Bhadoi (2) Kharif and (3) Ravi. The bhadoi includes two upland rice crops, millets and pulses, the kharif includes better class of rice and lurguja. The most important of the ravi crops are rahar and sarson (mustard).

Rice is relatively a luxury for the poor. Few villagers can afford to take rice regularly. *Marua* and gondli constitute the staple food of the poor classes. *Makai* (maize) sagarcand and mahuaflowers are food of the villagers for two or three months in the year.

The villagers of Chotanagpur are more particular about manure than their brethren in Bengal. Ashes and cowdung are thrown on the bari land and sometimes the silt of a tank is used for manuring.

The agricultural holdings of villagers are small and the production is on a small scale. Agriculture depends mostly on the character of the rainfall. there is an excessive rainfall, or a failure of rains, scarcity is inevitable. Irrigation works on a large scale are absent. There are many streamlets but they are apt to dry up and are not fit for irrigation. The ordinary method of storing up water, is to dig ahars or small tanks. The common practice of irrigation is to raise water from wells by a simple lever arrangement. The implements used in agricultural operations are all oldfashioned. These been in use from generations past. Plough, kodali, sickle, patta and jhabal are the most important implements. The plough is drawn by oxen, horses, and sometimes by cows.

Ignorance is the foster mother of superstition. The belief in the existence of supernatural beings is universal with the villagers. The natural phenomena are considered by the people to be manifestations of the supernatural agency. Disease in men and animals is considered to be due either to the wrath of some evil spirit or to the witchcraft of some neighbor. Almost in every village a big tree is set aside as being the haunt of evil spirits. This tree is worshipped regularly by a village priest. "A very detestable abuse of this widespread superstition is the practice of bribing the deokli (witch finder) to denounce as a witch a person whom he has no reason to believe to be such. For example, when other means have failed of evicting a man from his land, unscrupulous landlord has been known to this means of effecting the ruin of his tenant." 1

I have already pointed out that the population of a Chotanagpur village contains diverse elements;

¹ Gazetteer of Hazaribagh by E. Lister, C. I. E.

but these elements are not evenly distributed. In some cases the Non-Aryan element predominates and in some other cases a particular Hindu caste is the principal factor. But almost everywhere we notice a division of functions. In every village there is a carpenter to repair the ploughs, a lohar or blacksmith to keep the agricultural implements in order. A barber is an important personality, while the dhobi (washerman) is an indispensable factor. They are all paid by grain allowances. In big villages there are potters and weavers. The importance of the potter cannot be overestimated, he supplies all the utensils used by poor villagers. The village weavers use the most antiquated forms of looms, they still move their shuttles with their hands. The average earning of a weaver can seldom exceed four annas a day.

The village artizans can hardly earn a sufficient livelihood if they stick to their own profession. have to supplement the product of their craft by taking recourse to cultivation. In many villages there are banias or sahus who deal in grain and lend money at an exorbitant rate of interest.

In some villages there is a headman, while in every village there is a priest whose function is to worship the spirits and propitiate them. The gorait was formerly a very important person in the village. He was a chowkidar (watchman) and at the sametime the landlord's agent; but these functions have been separated, because as chowkidar, he was tempted to report only such cases as were approved of by his landlord.

It is a very pleasant fact to note that in the villages of Chotanagpur, there is no conflict between the Hindus and the Muhammadans. "They fraternise freely. Tajias furnish as much an occasion of merrymaking to the Hindus as Phagua to the Muhammadans."

The lower classes are very prolific, and the supply of labor exceeds the demand for it. In the agricultural season, most of the people find employment in agriculture, but when that season is over, the people come face to face with the problem of unemployment. Some find employment in the towns, and the artisans go back to their own crafts, but the landless laborers, who have got no knowledge of any craft find themselves in a very bad situation. The only course left to them is to abroad in search of employment. To the credit of the villagers, it must be said, that they are very mobile. A large number of them go annually to the tea plantations of Assam and to the mills and factories of different parts of India.

In connection with the labor problem of Chotanagpur, the kamionti system deserves special mention. a kind of serfdom prevailing in the twentieth century in some parts of Chotanagpur, especially in the North-West of the Hazaribagh district. Kamias are a class of laborers, who bind themselves to undertake any kind of work for the interest on the loan advanced to them by the creditors. They are expected to be ready for agricultural work of their masters who feed them or give wages in kind for those days on which they work. When the creditor does not require their service, the kamias can work for any one There are special difficulties imposed on the kamias. They "cannot bargain about their wages. must eccept the wages that are customary for landlords to give to their class." The amount of grain received by each bamic is less than half of what a free laborer gets. The kamia has practically no opportunity of paying off his principal debt which is sure to increase at the time of his son's marriage. A man who becomes once a kamia

remains so throughout his life. Sometimes worse may happen, the *kamionti* bond may become a hereditary burden. The *kamias* are not free to leave the villages of their masters. Cruel treatment of *kamias* is not an uncommon thing.

To illustrate the *kamionti* system I quote the following cases of *kamias* from the final settlement Report of Hazaribagh. "Dhano maujhi—26 years ago, his debt amounted to Rs. 12-8. He is working for the malik even now and his work goes to liquidate the interest only. He is an old man now. His father was a kamia before him.

Lochan Roy—8 years ago his debt was Rs. 25-7-6, and to liquidate the interest only he is working as a kamia. Four years ago his brother had the misfortune of taking a loan of only Rs. 7 and he was added to the band of slaves. Both brothers Lochan and Dinoo are kamias now. Their father was a kamia before them."

The kamionti system prevails even to-day though several district officers tried their best to put a stop to this practice. The creditors cannot register their bonds, nor can they sue publicly; but simply by a threat of suing they keep the kamias under control. The recent abolition of compulsory labor may mitigate the hardship of the kamias; but a special measure is necessary for the entire suppression of the system.

The wages of laborers run from $2\frac{1}{2}$ annas to 4 annae. Higher wages are paid in the neighborhood of coal and mica fields or in the urban areas. The wages of women and children are lower. In the case of the former, the amount varies from $1\frac{1}{2}$ annas to 3 annas, while in the case of the latter, wages fluctuate between 1 anna and 2 annas.

It is very difficult to estimate in money, the wages of laborers hired by the year. They are paid in kind; sometimes they are given full meals.

Labor as a factor of production is abundant in Chotanagpur. If the mineral resources which lie unworked are developed, a large number of laborers may get employment. Messrs. Tata Company's Iron and Steel Works has given employment to thousands of laborers.

The cattle constitute the chief wealth of the villagers. Want of capital is the cause of much hardship. When the season for agricultural operations comes, the people have to take recourse to loans. The rate of interest varies from 75 to 150 per cent. Oppression and deceipt on the part of the creditors are very common. "The evil does not proceed so much from the mahajan's claim for compound interest which keeps the debt intact for ever, but from their pernicious habit of making collusive compromises with the ryots." The creditors often take advantage of the ignorance of the villagers. Mr. Sifton in his Settlement Report quotes the case of a Santal who borrowed rice worth Rs. 6. For this loan the mahajan held 1.10 acres of don first class land, a quarter of an acre of don third class land, half an acre of taur as well as a hand note for Rs. 51.

In the case of a loan of grain, the amount is repaid at harvest time by double the quantity borrowed. Some of the poorer classes point out that indebtedness is a mark of solvency. In one of our village excursions we wanted to know the debt of a Bhuyia, but he said that he was too poor to have a debt. Money lenders grant loans to men who have some landed property or cattle; they never hazard a loan to a man like him who works as a daily laborer with hardly any property moveable or immoveable.

The co-operative credit societies are doing substantial work at Ranchi through the exertion of some

¹ Final Settlement in the district of Hazaribagh.

patriotic gentlemen; but the movement has not yet begun at Hazaribagh.

Illiteracy is almost universal. The latest census report shows that in Bihar and Orissa 28 out of 1,000 can read and write; the proportion of literate is lower in Chotanagpur. There are primary schools maintained by district boards and Christian missions, but these are few in comparison with the numbers of the population. In some villages, the primary school works only for a few months in the year. When the season for agricultural work comes, the school is dissolved; the teacher and the students go to the fields.

It may be laid down as a general rule that next to education the backwardness of a race depends directly on the difficulty of locomotion. The absence of railways throughout the greater part of the division makes internal movement extremely difficult. There are many roads maintained by district boards; but within the villages, good metalled roads are practically Carts are frequently seen. One special kind of cart known locally as sagar deserves mention. It is a very simple contrivance. Three solid pieces of wood are bolted together with two short spoke-The wheels are made of wood, each less wheels. having three parts joined together. The special feature of a sagar is that it is proof against bad roads. The sagars can cross lands however undulated or rough they may be. They can pass through marshy places or open fields. Almost every family has got one sagar to fetch fuel from the jungles. A sagar is also used for carrying passengers. khatia or charpoi (bed) is placed upside down on it. and the upper part may be covered; then the sagar becomes a convenient vehicle. The inventor of this simple mechanism deserves congratulation.

The domestic animals of the villagers are cows buffaloes, horses, sheep and goats. The lower classes of the people keep pigs, fowls and ducks. The cattle are small in stature. It is a matter of much regret that they are not properly taken care of. In some villages there are common plots of land for grazing; but proper pasture grounds are very rare, especially in summer.

The following things constitute the furniture of an ordinary villager; a few iron or brass utensils, earthen vessels, mats made of date leaves, one or two *khatia's* or cord bedsteads, and last though not of the least importance, a *barni* (broomstick). In a rich man's house, besides these a few more articles are seen. These are pestle and mortar for cleaning rice and pulses, 'one grindstone for grinding spices, and several bellmetal pots.

The ordinary dress of a villager consists of three items; one dhuti or cloth reaching as far as the knee, one short coat and a head dress which is a cap or more usually a turban made of a small chadar. In winter well-to-do husbandmen wear a big chadar. A coarse sari forms the entire dress of a woman; sometimes she puts on a small jacket. One charpoi and an earthen pot containing fire placed beneath it—these two constitute the principal luxury of the poor people in winter nights.

In villages, far from the towns, money plays a minor part in ordinary transactions. The villagers seem to be familiar mostly with two kinds of money, rupees and pice (known as kancha). In some places villagers have been found who refuse to accept two anna or four anna pieces. The local term for two pice is takka. When the vegetable dealer wants one takka for half a seer of potatoes a new comer may get startled and may believe that a rupee is wanted for the potatoes.

The villager's seer is kachi as opposed to the pucca seer of the town. One kachi seer is nearly half of the standard seer in weight. The life of the villagers is very simple. To meet their few wants, they do not require to run to shops frequently. There is hardly a shop in a village. Very rarely one comes across the shop of a teli who keeps chhatu (powdered gram) some salt and a stone of gur (raw sugar). His total daily transactions amount to a few annas. Once or twice in a week there are hats or fairs where people flock together for sale and purchase; the hat begins at ten and is dissolved before sunset.

Custom reigns supreme in the villages and sometimes it exercises its influence very tyrannically. For want of funds, a man cannot call in a doctor, but when any of his relatives dies, he must spend a large sum; the dead body must be covered with a new piece of cloth and after the expiration of a certain period he must beg or borrow to give a feast to his relatives and kinsmen. Until he arranges this feast, he will have to remain outside his caste. The trouble of finding funds drowns his sense of bereavement.

The majority of the villagers are very poor. We cannot decide whether a people is poor, unless we determine on the one hand, the income, and on the other, the extent and the elements of the cost of I have constructed budgets of some fifty different villagers and I find that the important items of expenditure of a Chotanagpur villager are principally three: (i) food (ii) clothing and (iii) shelter. Some 70 per cent or even 75 per cent of the total income is invariably spent on food, which includes rice or its substitute marua, gondli or chhatu (powdered gram), salt, marchai (red pepper), vegetables (occasionally

perchased) and mustard oil. The amount spent on elething varies from 10 to 15 per cent of his income while the amount paid for shelter including rent is also 10 to 15 per cent. Nearly 4 per cent is spent on sundries.

As regards the income per head of the villagers it is very difficult to find out exactly the amount which an average villager gets. But there is reason to believe that an average villager's income does not exceed Rs. 15 per head per annum.

The amount sufficient to maintain the prevailing low standard of life of the villagers is about Rs. 24 while the average approximate earning is about Rs. 15 to Rs. 16. The income is not sufficient for the maintenance of mere physical efficiency.

I tried to see how far Dr. Engel's propositions regarding expenditure are applicable in the case of the rural parts of Chotanagpur.

In this connection I found that his first proposition,—the greater the income, the smaller the percentage of outlay for subsistence is approximately true. The percentage of outlay for clothing is approximately the same whatever the income. This is Engel's second proposition. I found that this is not strictly applicable. The amount spent by the villagers on clothing and not the percentage of outlay is practically the same whatever the income.

The third proposition of Engel that the percentage for rent and for fuel and lighting is approximately the same whatever the income, is not applicable at all. The villagers spend practically nothing for fuel er. lighting. They get fuel from the jungle and they prepare oil at home from karonj seeds for lighting, only the villagers in the neighborhood of towns have begun the use of kerosine oil. The amount paid as rent increases with the amount of income. The

principal source of income is agriculture. Additional plots of land will require additional rent; and hence greater the income, the greater the rent.

The increase in the amount of income is followed by an increase in the percentage of outlay for sundries. This is Engel's fourth proposition. This is applicable, if in sundries we include drinking. Some of the lower classes of villagers have a vicious habit of drinking. If there is an extra income, it is sure to be spent on drinking.

In conclusion, I beg to suggest that in any scheme of political or economic progress of India, we should never lose sight of the villagers; and we should always remember, that the welfare of the villagers is synonymous with the welfare of India. For the strength and the stamina of India are not lodged in the city-bred, but more potentially and more actually in those people who are in touch with the soil—the so called "rustic" population.

THE FINANCE OF ECONOMIC DEVELOPMENT

PROFESSOR H. STANLEY JEVONS, M.A., B.Sc., F.S.S., UNIVERSITY OF ALLAHABAD

Whilst all the rest of the Allied countries are discussing reconstruction—including economic organization on national lines and the entire replanning of their transport systems—we in India are satisfied with considering constitutional reform, and trusting that the Government of India will take some action on the Industrial Commission's Report. Just as our measure of political reform is mild in comparison with cataclysmic changes in progress in Europe; are our ideas of economic progress limited by the mild achievements of the past. It does not seem to be appreciated that in the great march of civilization any country which fails to advance with the rest falls back relatively. Thus India, if she does not enter upon a campaign of rapid development of resources may soon lose that international position which has been won for her by the valor of her soldiers. May the governors and leaders of the people in times of peace not be found less effective than the generals and captains of war! Digitized by Google

What is urgently needed in India to-day is to make a bold program of economic development upon a scale hitherto undreamt of, and immediately to take the necessary steps to begin its execution. At the present moment there are three great needs which constitute three great difficulties: men, money and materials. Men of two classes are needed: (1) administrative officers, some of whom are acquainted with the economic and financial aspects of development undertakings, and others having knowledge of engineering in some particular branch and able to plan schemes, and direct the preparation of project reports; (2) executive officers who can be entrusted with actual works of construction, and are each specialists in their own line. The administrative officers must be men with some knowledge of Indian conditions, and to a great extent they can be found in India at the present time. To supply the very large number of executive officers required, who will be mainly engineers and agriculturalists of varied training and experience, it will be necessary for the first few years to draw very largely on England and America. But the object should be to supply executive officers by training Indians in India as soon as possible. For this purpose we require to have established several new engineering colleges—at least one or two in each province—and to enlarge and specialize our agricultural colleges, greatly strengthening their teaching staffs, and associating with them men imported from abroad well qualified in dairying, cattle breeding, agricultural engineering, and so forth. High salaries must be paid so as to get first-class men for these professional colleges. It would be abundantly worth while to pay the price of the best men.

Materials, stock and machinery required for railway extensions and many other works cannot vet

be purchased, and it will not be easy for some time to ship them. Well known firms in Europe and America are booked up with orders two years ahead. But this difficulty will right itself with time; and since it takes a long time to make plans for big projects, and to find the men to superintend their execution, the material will probably become available as early as we are ready to make use of it upon any extensive scale.

Looking then four or five years ahead we may easily see that the limitation on the progress of economic development which is then to be achieved will be financial considerations—as always in the The provision of the requisite funds for the extensive schemes and improvements needed is perfectly possible, but it will not be an easy matter. It needs planning for some years in advance so that financial policy consistent with rapid economic development may be adopted, and the sources funds for capital expenditure, whether obtained borrowing or otherwise, may be carefully nursed and developed. There is no doubt but that economic development has been stifled in the past by want of funds; and I maintain that this shortage of money for capital outlays was not altogether real, but was very largely the result of the Indian financial system which regarded public works as desirable luxuries on which surpluses might be spent, and also borrowed moneys if they could be obtained at a very low rate of interest. It is true that during the decade before the war a change of attitude was beginning, and the war has done much to quicken it.

The assumption made in this paper, which I need not spend time in justifying before a Conference of economists, is that new public works are not luxuries, but are prime necessities, the provision of which

must be regarded as the chief function of Government after the maintenance of peace and justice. Such works can, in general, only be carried out by Governwith its assistance: their provision absolutely essential not only for the economic betterment of the people of this country, but also to strengthen India in her international position as a loyal partner in the British Empire. The purpose of this paper is to examine the financial resources which may be made available for economic development, and to suggest a consistent policy of developing them so that they may yield year by year increasingly larger funds. It is a policy of the steady development of financial resources which I shall advocate and describe.

Government requires the increase of both capital and income. Larger annual revenues are needed for the extension of education and for greatly increasing the staffs of the departments of agriculture. important point is that no great expansion of revenue can be expected until the country has been further developed by public works and land improvements of all kinds. It is exactly the same as in any commercial or industrial undertaking—the investment of more capital brings additional income. In the case of public works the income takes the form not only of direct revenue, that is the actual gross receipts of railways, charges for water of irrigation canals, and so forth, but also of indirect revenue. is realised through taxation, the social income (i.e., the local portion of the national dividend) having been so increased by the public works, such as roads, bridges, railways, etc., that higher taxation is paid with less burden than was caused by the taxes existing before the public works were constructed. Hence the State can freely invest capital in so called non-reproductive

works such as roads, bridges, technical colleges, etc., and get just as good a return by means of increased taxation, as it can get from the direct revenue of railways and other reproductive works. This is the justification for constructing non-reproductive works from borrowed funds.

There is no time for me to deal with the character of the public works and other measures of development required. It is generally admitted that India is extremely ill-provided with roads: new trunk roads are wanted, and feeder roads to railway stations, and a complete network of intervillage roads, all metalled. In the villages themselves unmetalled field roads are wanted, which should be planned when the great reform of reconstituting scattered holdings is carried out. Altogether at least 200 crores of rupees could be spent upon roads before the limit of remunerative investment of capital would have been reached. Railways in India need enormous expenditure. Several new main lines are required, and innumerable feeder lines and cross connections, all of which should be laid out now according to a general plan for the whole of India. It is interesting to find that the mistake of allowing railways to be built piece-meal by competitive companies is being realised in the United States, where a complete replanning of the entire transport system is being suggested. In India we shall require a total of frcm 70 to 80 thousand miles of railway before we can say that the country is at all well developed; that is to say, we require at least double the present mileage. But not only is there the cost of many new lines to be faced; the existing ones need improvement. Single lines must be doubled, metre-gauge must be converted to broad-gauge, tracks must be regraded over Ghat sections, and bridges must everywhere be strengthened

or replaced so that far heavier train-loads can be carried. The useful expenditure on railways cannot be put at less than 500 crores of rupees and a program should be drawn up for expending this sum within twenty years.

Then there is irrigation. New main canals are needed for tapping the Indus, Sarda, Gogra, and other rivers. The existing canals and their distributaries. need re-alignment in many places, and in certain sections should be lined with concrete to prevent seepage. The building of pucca village water-courses will pay in many districts, but will cost a great deal. Where perennial rivers cannot be turned into canals, there are pumping schemes to be initiated; enormous tanks and numerous smaller ones remain to be constructed; and a vast number of village wells with oil-engine pumps are needed, for which Government must advance most of the cost zemindars or co-operative Societies. In all, at least 400 crores of rupees could well be spent on irrigation.

But this is not all. Mr. Howard of Pusa has drawn attention to the extent to which soil fertility is lost in India by soil erosion, on the one hand and want of drainage on the other hand. Main drains have to be excavated throughout the country according to a comprehensive plan, and advances must be made to zemindars to provide the village drains, and to construct bunds and terraces to stop erosion. This work is not so expensive, but at least 100 crores are needed. Upon afforestation and the development of existing forests another 100 crores could very profitably be spent.

We also want big warehouses and granaries at all railway stations serving markets; and we want silos in every village to store fodder for cattle. We want more telegraphs and telephones; more colleges, schools

and markets and public buildings of every kind. Crores must be spent upon sanitation, other crores on river improvements and canals for navigation in Bengal, and yet more crores on fifty other kinds of works of general public utility.

I have given this sketch of our requirements, Gentlemen, so as to set you thinking on the right scale. We have thought too long in lakhs of rupees when we ought to have thought in crores. vast resources of this country and the untold possibilities of prosperity will remain undeveloped and unrealised so long as we fail to think upon a scale commensurate with these wide territories and their huge population. I beg you always to have before you or handy for frequent reference, two maps of India, one showing the physical features of the country by colored contours, the other showing the density of population according to the latest census. Ponder them well; and think over these facts: that 90 per cent of this territory is undeveloped physically according to Western standards and 95 per cent of this thickly crowded population is humanly speaking undeveloped. Are we to leave them so? Are we to continue toying with our tasks in a hesitating manner, changing things so slowly that the natural increase of population, always working against us, is for ever in the ascendant; and is the vast proletariat merely to grow larger and for ever to remain depressed in a state of extreme poverty? God forbid that we prove unable to face our task; incapable of bringing about the requisite changes with the speed required. England and India have accomplished their work well upon the greatest battlefields of history. Are the times of peace to find us sinking back in slothful complacency to a continued acceptance of things as they are? Indeed, I hope not.

What we have to do is to let our imagination play upon the vast possibilities of the future and to make bold but careful plans to realise our visions. Our plans formed, let us with no less boldness proceed to execute them. There comes then at once the question of finance; and it is in this spirit of boldness, tempered by careful consideration of what the conditions render practicable, that I proceed to examine the financial position of India and the ways and means of financing large development measures.

Financial Position of India

It is fortunate for us that at the commencement of a period when large expenditures will be needed, the financial position of India is one of unassailable strength and unrivalled security. We owe a deep debt of gratitude to the successive Finance Members of the past twenty-five years who, assisted by rising prices, have with sedulous care, extricated India from the perpetual shortage of funds which then embarrassed her statesmen. Whilst desiring to give credit where it is due it is also necessary to add that a policy of bold capital outlay is no less consistent with a strong financial position than a policy of conservation of resources and restriction of borrowing. It is all a question of following good principles of finance. Assuming that maintenance of the present strong financial position is absolutely the over-ruling consideration, there need be no hesitation whatever about going forward with well considered expenditures, for every one of them will in due time bring its own reward,—some twofold, some an hundredfold before their benefits are exhausted. We need caution, not to stay us from action, but to goad us to a thorough consideration of our proposals, especially a careful investigation of the financial prospects of each

and every project. This done, we shall find abundant opportunities for the remunerative investment by Government of capital funds.

The two outstanding features of India's financial position which prove its strength are the abnormal excess of receipts over expenditure, and the extreme smallness of the unproductive debt relatively to the country's total national wealth. Finance Members have in recent years budgetted with extreme caution, with the result that considerable surpluses have in fact been realised. As the last monsoon rainfall (1918) was poor over a large area, and as India has undertaken to bear a larger share of the military burden of the war, the surplus to be expected in the present year must be very small; but with the recovery of trade, following the resumption of normal shipping facilities, a great expansion of revenue may be expected, and likewise an expansion of income tax, so that in future years of good or normal monsoon rainfall a handsome surplus is likely again to be the rule.

The true financial position of India will be best understood if we analyse the accounts of the public revenue and expenditure of India for the latest year for which they are available at the time of writing, namely 1916-17. As published by the Government of India the figures do not mean anything to ninetenths of the persons who read them. I propose, therefore, to recast them in the form of accounts which is familiar to business men, separating the commercial services from the taxation and civil expenditure, and from the results of loans and investments, and also separating receipts and expenditure on revenue account from capital transactions.

TABLE I STATE REVENUE AND EXPENDITURE, 1916-17 (0,000's omitted)

Revenues	(0)	Expenditures	
•	$oldsymbol{Rs.}$		${\it Rs.}$
Land revenue 33,06,2	2	Costs of Collection:	
Less sales, redemp-			
tion money and refunds 48,0	32,63,2	Land revenue	5,72,0
Opium	4,74,0	Do. compensations	
Salt	7,21,8	Opium (and produc-	_,_,_
Stamps	8,58,0	tion)	1,37,8
Excise	18,76,5	Salt (and production	
Cotton Manuf. excise	48,8	Stamps	26,0
Customs	12,18,0	Excise	71,7
Income tax	5,60,9	Customs	40,6
Registration	81,1	Excise Compensa-	
Tributes from Native	·	tions to States	8,4
States	88,7	Miscellaneous com-	
Law and Justice	1,14,1	pensatory annui-	
Other Civil depart	j -	ties, etc.	28,6
ments	1,46,7	Income tax	5,6
Miscellaneous (less sale	8	Military Services	89,85,0
on capital account)	1,21,8	Civil works	6,92,4
Military receipts	2,86,4	Registration	89,6
Civil works	41,2	Police	8,13,6
(largely rents and tolis)		Law and Justice	6,58,9
		Education	4,68,5
		Medical and Sanita-	
		tion	2,06,6
		Agriculture and	
		Scientific depts.	1,57,6
•		General Adminis-	
		tration	5,60,0
		Pensions and super-	
		annuation allow-	
		ances	5,90,4
·	1.00 =	Stationary	1,21,0
Deficit	1,88,5	Miscellaneous	1,00,6
Rs.	94,84,2	Rs.	94,84,2

Table I shows the expenditures of Government on the collection of taxes, on defence, on maintenance

of roads and buildings ("civil works"), on the general civil administration, including education and the medical, agricultural and scientific services. These are all expenditures which most Governments undertake for the general benefit of the people at large, and which, not being directly reproductive in character, must be met by taxation and other general sources of revenue which the State may possess. In Table I the revenues are of several different kinds: (1) Land revenue; (2) State monopolies; e.g. opium and salt; (3) Taxation income tax, customs and excise being the principal heads; (4) Fees, as for registration and most of "law and justice"; (5) Tributes; (6) Rents and tolls; (7) Miscellaneous (including civil departments military receipts). The miscellaneous headings cannot be fully analysed from the printed accounts. include sales of current produce of Government presses, dairies, etc; also some rents and fees. The excess of the expenditure over the imcome for all these ordinary functions of Government in 1916-17 Rs.1,28,50,000. This figure is, of course, only approximate and is merely the difference between the two totals as there is no independent check obtainable in the published accounts. It should be explained that the refunds have been deducted from the principal heads of revenue, so that the figures do not tally at first sight with those in the printed summary.

In Table II, I have set out the financial results of the Commercial Services, and it is obvious that every one of them shows a considerable profit. In the case of railways I have shown an item of Rs.9 crores for suspense account for renewals and repairs which is not to be found in the printed accounts: it is the share which I attribute to 1916-17 of the £20,000,000 which Sir William Meyer stated had been earmarked for expenditure for this purpose at the end of the war.

TABLE II COMMERCIAL SERVICES, 1916-17 (0,000's omitted)

Revent	Revenues Expenditures		·e8	
	Rs.			Rs.
Railways	62,85,2	Railways:-		
•		Working expenses	31,07,1	
		Interest on capital	11,68,9	
		Suspense account	9,00,0	
		<u>-</u>		51,71,0
Irrigation	7,78,8	lrrigation :-		
	.,.	Working expenses	3,20,4	
		Interest on capital	2,12,0	
				5,32,4
Forests	8,69,8	Forests		1,87,7
Mint	1,03,5	Mint		25,1
Posts & Tel	le-	Post & Telegraphs		5,16,2
graphs	6,26,2	Balance: Profit		17,25,1
D.	01 55 5		- Da	01 57 5
Ks.	81,57,5		Rs.	81,57,5

The net profit made by each Service separately is as follows:—

	Rs.
Railways	11,14,20,000
Irrigation	2,40,90,000
Forests	1,81,60,000
Mint	78,40,000
Posts & Telegraphs	1,10,00,000
Total net profit	Rs. 17,25,10,000

We may next construct a profit and loss account which brings together the balances from the two preceding accounts, the interest on moneys borrowed and lent, transactions connected with the Famine Relief Fund, and so forth.

TABLE III PROFIT AND LOSS ACCOUNT (0,000's omitted)

Receipts	_	Payments	
T	$oldsymbol{Rs}.$	T-4	Rs.
Interest from misce-		Interest on ordinary	
llaneous advances in		debt	67,8
India, and invest-		Interest on Savings	
ment of Reserves in		Bank Deposits,	
London	1,70,4	and miscellaneous	
Famine Relief Fund	1,50,0	funds, loans and	
Profits of Commercial		deposits	1,08,4
Services	17,26,4	Famine Relief ex-	
		penditure	28,1
		Famine Relief, balance	
		to Capital Account	1,21,9
		Loss on State Re-	,,-
		venue and Expen-	
		diture (from Table I)	1.38.5
		•	1,00,0
	·	Unexpended Pro-	
•		vincial Balances	
		placed on deposit	3,59,6
		Balance, being net	
		gain to Imperial	
		Funds (carried to	
		Capital Account)	12,22,5
Rs.	20,46,8	Rs.	20,46,8

The Government of India has lent large sums of money to the various Provincial Governments for the purpose of their lending them again to municipalities, rulers of Native States, and large zemindars, to Court of Wards estates and to cultivators as "takavi" loans. The interest on all such loans appears as the first item on the receipt side. On the payment side appears the interest on ordinary debt, which is the remainder after deducting from the total debt, the grand total capital expenditure to date on State railways and irrigation works. By curtailing expenditure on special works and expansion of education, several Pro-

vincial Governments effected economies which increased the provincial balances. Such increases were put on deposit with the Government of India, and as they really represent increase of capital funds of India as a whole, they are shown as payments to capital account. There remains a net balance of over twelve crores of rupees which is also carried to capital account. Both this and the increase of Provincial balances, which together amount to nearly sixteen crores, are of the nature of accumulated net profit and are equally an addition to the capital funds of the State as a whole.

We may now turn to the last of the accounts, namely the capital account, in which I have endeavoured to show the net increase or decrease of value of the assets of the State in India as a whole. It is impossible to construct a balance sheet of the Government of India and its Provinces as a whole. It would be an immense task to ascertain the total sum expended in all preceding generations on the development of the country with roads, bridges and many other works; to ascertain the cost of all public buildings and to allow for the depreciation which has taken place in all these. Unquestionably the assets enormously exceed the liabilities. The capital value of railways and irrigation works alone very nearly equals the whole public debt.

The receipts and payments on capital account which are shown in Table IV have been gathered by searching in various parts of the volume of Finance and Revenue Accounts for 1916-17. They are almost certainly incomplete, because the matter is exceedingly technical, and much patience is required to find out what some of the entries mean. Possibly some of them have been altogether wrongly interpreted. The probability is, however, that the errors

are comparatively small, and certainly they do not affect the general result which shows an enormous accretion to the capital fund of India during the year under review.

TABLE IV		ACCOUNT omitted)
and Decreases of Li	abilities. Rs.	Rs.
Increase of Famine		Expenditure on rail-
Relief Fund	1,21,9	•
Increase of Provincial		Capital 2,80.8
Balances	3,59,6	
Imperial Surplus		tective Irrigation
(From Table III)	12,22,5	works (Famine Relief
Addition to Gold Stan-		Fund) 50,0
dard Reserve	6,82,0	
Increase of Fiduciary		Works charged to
Portion of Paper		revenue:—
Currency Reserve	28,49,1	• • • • • • • • • • • • • • • • • • • •
Sales		Roads 47,4
Land Sales and redemy		Provincial railways 0,3
tion of land revenue	,-	
Civil works (buildings,		
materials, etc.)	5,1	
Miscellaneous	5,8	•
Debt Reduction		Debt Increases
Payments in reduction		Permanent Debt 7,83,5
of debt on account of		Increase of Savings
Famine Relief Fund	71,8	Bank and other De-
Permanent Debt		posits 2,22,0
Discharged :—		Local Funds 16,4
By repayment	1,65,6	Temporary Debt in-
By conversions	80,8	curred 7,91,5
Temporary Debt dis-		Balance, being the net
charged	19,50,0	increase of Assests
		of the Government
		of India 50,94,7
Rs.	74,48,0	R_{s} . $\overline{74,48,0}$

Sources of Funds for Public Works

When we come to examine the possible sources of funds for capital expenditure on public works we find there are but three:—(1) current revenue surpluses, (2) the profits of coinage and of issue of paper currency and (3) borrowing.

The first of these, current revenue, has been in the past an important source of funds in two ways, either by budgeting for important works, particularly those of a non-reproductive character to be charged on revenue, and partly by utilizing revenue surpluses for this purpose. To a certain extent it is right to utilize not only revenue surpluses, but a regular charge on the revenue to construct works. good finance because it acts in the same way as a sinking fund. The policy I would recommend would be so to increase taxation (by a small amount) as to make civil receipts and expenditure balance, and to regard the profits of the Commercial Services as a fund reserved entirely for financing new public works. This would be required for use in two ways: (1) to meet losses on works constructed out of borrowed funds in their early years before their revenue is matured, (2) to meet the capital cost of constructing certain works. The sum available for the purpose might be from 10 to 15 crores per annum.

The second of the above mentioned possible sources of funds is the profits of coinage and of the issue of paper currency. The profits of coinage were considerable until the rise of the price of silver reduced them almost to nothing a year or so ago. Now that the rate of exchange has been increased there is still a small profit, either on the exchange or on the coinage, according to the manner in which the book-keeping of the transactions is entered. The profits of coinage have been so large in the last four or five years

that the Gold Standard Reserve has been built up to an enormous sum. At present (December, 1918) the Gold Standard Reserve consists of £35,400,000 which is held entirely in London, invested mainly in War Loans of the British Government. It is very doubtful whether so large a sum is really needed. It is difficult to find any a priori measure by which to determine the proper size of the Gold Standard Reserve. I would say that from the theoretical point of view, it should depend upon the possible balance of payments which might arise within the next few months due to an excess of imports over exports. Such excess would arise through considerable imports being made in anticipation of a good season and long credit being given followed by a failure of the crops and a reduced surplus for export from India. If we assume the average period of credit on import trade to be three months, and if we assume that the value of the exports could hardly be less than half the value of the imports in any period, this would seem to show that the maximum figure likely to be required for a Reserve in London, needed to meet reverse councils would be one-eighth of the total value of the imports into India during a whole year. Of course this total value of imports varies very considerably; but we find that the highest amount yet recorded is 1831 crores, or £122,160,000 in 1913-14. The figure of £25,000,000 is distinctly more than one-eighth of this and might, therefore, be regarded as a safe maximum for the Gold Standard Reserve. It would seem, therefore, that some ten twelve million pounds could be made available for other purposes from the Gold London Standard Reserve.

Next we have the Paper Currency Reserve. The fiduciary portion in India is ten crores, whilst in

England it has expanded to eighty crores. There is a good deal of misapprehension as to the real nature of the fiduciary portion of the Currency Reserve, which Government itself to some extent fosters by the character of the legislation regarding the Currency Reserve. In reality the reserve required for paper currency is precious metal, gold or silver coin, or bullion of either metal. When Government issues paper money to an amount larger than the metal which it has actually in reserve, it is done upon the faith, warranted by experience, that only a small amount of the notes are likely to be presented for encashment at any one time.

The fiduciary portion of the reserve way helps Government to redeem its of encashment of notes in coin of the realm: for if it is short of silver in India it can do nothing but make special arrangements to import it, as it is doing from America; and if it is short of gold, fifty million pounds of War Bonds in London are of no use because the export of gold is at present controlled and prohibited. When the public will absorb a higher circulation of currency notes it is perfectly legitimate for the Government of India to increase the fiduciary portion of the Reserve. What the Government does, however, is to manufacture money with a printing press and put it into circulation in India. Instead of following the unprincipled practice of indefinitely issuing notes merely to meet its own commitments. as was done by France in the Revolution, and by South American Republics throughout the 19th century, and is done by Russia to-day, the Government of India can by law only use the newly created credit money which is its own property either to purchase its own loan securities in India or to invest in British Government securities in London. In other words it

utilizes such newly created money to reduce its indebtedness either by cancelling debt in India or by creating an asset of British loan bonds owned and held in Loudon. It can go on doing this as long as the public will absorb more currency notes, the only limit imposed by sound finance being the necessity of retaining, say, at least 15 per cent of the total active currency circulation as a reserve of actual coin in India.

It may well be asked why the Government of India should be required by law, when it issues more paper money without adding to the metallic reserve, either to reduce its own indebtedness India or else to create liquid assets in London. is the Gold Standard Reserve which requires liquid assets in London; and I have already shown that this is even now larger than is necessary according to the probabilities of trade conditions. If more than the 25 millions sterling of credit in London were required by the financial situation, there would be no difficulty in the Secretary of State for India borrowing a few more millions in London to meet still further sales of Reverse Councils; and it would be worth while to pay 7 or 8 per cent per annum for such short term borrowing in London rather than to keep money idle which might be used for the ecnomic development of India.

The result of this argument is to suggest that it would be a perfectly sound financial policy to utilize a large part of the new money created by the expansion of the currency note circulation: (1) in temporary loans, made through the existing Presidency and big joint stock banks of the country, for the purpose of financing trade and industry, (2) to utilize the rest of it as a lock-up investment in the construction of new public works. The former por-

tion would be, to a large extent, recoverable in case an economic or political crisis created a contraction In any case the part sunk in in the circulation. fixed investment would in no way endanger the convertibility of the note issue because at least 80 per cent of the note issue is now-a-days normally inconvertible. In other words, the Government cannot sell its own loans which it holds in order to attract silver. Whenever there is a demand for the encashment of notes, it can sell its loans for currency notes, and thus contract the issue; but very little silver would be attracted to the reserve by the sale of Government of India loan at a time of crisis when people wanted to encash notes. Consequently it is a fallacy to suppose that there is any real security created which does not at present exist if part of the fiduciary portion of the Currency Reserve is utilized for fixed investment in India. It would be only a paper transaction. If keeping the exchange down to the limit of the price of silver were not the primary object, instead of piling up the fiduciary part of the Reserve in London the Government of India would buy more of its own loan securities in India. But instead of buying in the open market and raising the price against itself, it could issue a new loan; and this could be taken up with the Paper Currency issued and the proceeds could be applied, as the proceeds of loans usually are in peace times, to the building of the new railways and major irrigation works.

Besides the Gold Standard Reserve and the Paper Currency Reserve holdings in London, the Secretary of State has at present very large floating balances, so that the total funds of the Government of India in London come to over one hundred million pounds sterling. It would be difficult to transfer this vast

sum of 150 crores of rupees to India without completingly upsetting the rate of exchange; but it may be suggested that about 90 crores might be brought to India—say 20 crores in cash which could be utilized for the financing of trade and industries in India, and 70 crores in the form of commodities, that is to say, mainly machinery, plant and material required in India for all manner of works of economic development.

Public borrowing in India

If the sources so far examined were drawn on for the next twenty years it is hardly likely that they could with the utmost ingenuity be made to produce more than about 300 crores of rupees for all the manifold purposes of economic development of the Indian Empire. This is but a small sum in comparison with the vast sum of 1,500 crores or more which I indicated in the early part of this paper ought to be spent within the next twenty years on the economic development of India. what other source then can we have recourse in order to obtain the additional funds which will be urgently required? The obvious answer is that Government must be prepared to borrow largely in India. must gradually develope the market for public securities in India until with the increasing wealth of the country, consequent on the economic development which will be progressively achieved, the possibility of issuing loans will develope to the position they have attained in the countries of Western Europe and North America. It is no chimera of the imagination to assert that this can be done. The history of the development of public indebtedness in England, France, the United States, and other countries is perfectly well known. Both the principles and the

practice of the development of public debt are known and the problem only requires to be boldly faced, and the well-tried methods of other countries to be fearlessly applied with perseverance and discrimination.

Present debt of India

The permanent public debt of India at the 31st of March 1917 amounted to £282,718,000, or over 42 crores and was classified as shown in the following table:—

	£	$oldsymbol{Rs.}$
Railways	235,740,600	853,71,09,000
Irrigation works	48,285,800	64,92,87,000
Other Debt	8,691,900	5,53,78,500
	282,718,800	424,17,74,500

There was also local indebtedness of Port Trusts and municipal corporations of the five great port towns of India to the amount of several crores of rupees. This is owed directly to the public. of the other municipalities and local authorities in India have not borrowed from the public but from the Provincial Governments. The Government of India debt is now almost entirely represented by capital expenditure on railways and irrigation, as shown by the above figures. The "ordinary" debt, not so represented, is only 5½ crores of rupees, more than a third of which represents expenditure on works of the new capital at Delhi. It may be said that the whole of the debts of the municipal corporations and the Port Trusts are represented by works of various kinds actually carried out. The total permanent public debt in British India, including the municipal and port trust loans, amounts to only about Rs. 7 per head of the population; whilst if we include the sterling debt, converted at Rs. 15 to

Let the total debt is still only about Rs. 17-8 per head of the population. These figures are extremely low in comparison with those of other countries; and it is not entirely the poverty and undeveloped character of India which is responsible for this fact. There is no doubt that in the past there has been an extremely conservative policy adopted by the Finance Department of the Government of India as regards the raising of loans. It has been felt to be more important to avoid raising the rate of interest than to borrow larger sums. To obtain larger sums would undoubtedly have necessitated raising the rate of interest and this again would have tended to reduce the market price of the existing 8½ per cent promissary notes of which a very large quantity was already issued.

Whatever were the exact reasons which led to this maintenance of a low rate of interest and high market value for the public debt in India, the situation has been entirely altered by the War. The Government of India is now obliged to pay 5½ per cent for money which it borrowed on War Bonds, and the market value of the 3½ per cents has correspondingly depreciated, and the political fabric of India has survived the shock!

Looking forward to the future, therefore, it may be hoped that the Government of India will see fit to reverse its former policy and to regard the raising of large sums of money by means of loans as of prior importance to the reduction of the rate of interest. There can be no question whatever that many hundreds of crores of rupees could be so spent as to return indirect revenue of more than 6 per cent per annum; and if we take into account also the resulting indirect revenue, the return would be much greater. India very badly needs this capital expenditure, and is able and prepared to pay for it.

Extension of Local Debt needed

If a policy of extending public borrowing for the construction of public works be adopted it is by no means necessary, that practically all the borrowing should be done by the Government of India—I would go further and say that it is not desirable. There are many cosiderations which support the view that if there were a greater variety of loans offered to the public—as, for example, by allowing and encouraging Provincial Governments and local authorities, such as Divisional Councils and municipalities other than the port towns, to make their own issues—a far larger total sum of borrowed money could be made available each year for works of public utility, including sanitation.

In all advanced countries of the world there is a great variety of loan issues by different kinds of public bodies of all sizes. In England we have loans of many county councils, besides those of numerous municipal corporations and port trusts and and of special bodies like the Metropolitan Water Board. In the United States, besides the Federal debt almost every state has exercised borrowing powers, and counties, cities, school boards and harbor trusts all issue bonds. And so too in the British Colonies and in every Western country. It has indeed been acutely said that the state of advancement of a country in civilisation is indicated by the amount of its public debt per head of population. If this be interpreted so as to include all debt incurred by local bodies as well as state debt. it is substantially true; and for two reasons: (1) so far as the loan monies were spent for productive purposes (e.g., public works) they have accomplished economic and sanitary development of the country and have increased the national income and standard

of living; (2) so far as the national debt has been spent on non-productive objects such as waging war or constructing elaborate city halls and parks, the per capita debt is an index of the lending power of the people and thus of the stage of economic organisation and wealth-producing power which they have already attained.

In nearly every Western country, before the war, the total of local (including state and provincial) loans considerably exceeded the total of the national debt. In India however the total of local debt (to the public) is quite insignificant compared with the total of the national (i. e., Government of India) debt. In India the public indebtedness, as a system, is top-heavy; and the time has arrived when a firm foundation of extensive local loans might with great advantage be established.

Fifty years ago this system of having almost all the public debt concentrated in the Government of India was a necessary one, even for borrowing in India; but now the position has entirely changed. There has been a great growth of a wealthy middleclass in many parts of India; and other forms of debt of a local character could be gradually established and extended if the requisite steps were taken to foster and develope local money-markets, and to arouse local interest in local loans. The first step in this direction should undoubtedly be the granting of permission to Provincial Governments to borrow in India up to a maximum limit bearing some fixed proportion to their total revenue, but allowing free competition as regards rate of interest. As this would involve a complete change of the policy which the Government of India has hitherto pursued, my assertion needs justification; and for this purpose it is necessary first to secure a clear conception of the conditions which govern the lending of money—in

other words we must understand the conditions of supply of capital in the local money-markets.

Nature of Money Market

The money market in any financial centre is not in reality one market, but from the theoretical point of view a number of interdependent markets. Some borrowers want money for short terms, others for long terms: some offer good security, others comparatively poor security but a high rate of interest. the side of the lenders there is equal diversity as to the terms on which owners of capital are willing to lend—some for short, some for long periods: some putting security first, - others wanting a speculative investment with probable high yield. Each class of borrowers and lenders who are seeking to borrow and lend upon similar conditions forms a separate market; and the rate of interest for each class of security may vary separately from that of other classes in accordance with the conditions of demand for and supply of capital for investment with the conditions of that class attached to the demand and supply offers. Yet, as everyone knows, these separate markets for different classes of securities are to a large extent interdependent. If the demand in one classsay, industrial preference shares, increases with an expansion of trade, some offers are diverted, say from the railway debentures market, lessening the supply in that market. There are always numerous lenders who are on the margin of indifference as between one class and the next on either side.

For our present purpose the study of the supply side, that is the classes of lenders, may be taken first. It will be sufficient to divide all lenders of money for investment purposes into five classes, as follows:—

- (1) Those for whom great security is the *prime* object, and who invest, therefore, only in "gilt-edged" securities: for example, cautious persons providing for old age or their children; trustees and wards of estates; public bodies and institutions.
- (2) Investors seeking to provide for their own future and their families who want good security and no trouble in realising the income, but also a more liberal yield than can be had from "gilt edged" securites.
- (8) Those who want a good steady yield at a fixed rate from their capital, but for whom a fairly high rate of interest is an object of importance, and who do not mind incurring some risk, or having to take trouble to realize the income.
- (4) Enterprising investors who will put their money into shares of any sound concern in an established industry, being willing to wait, if necessary, for a return on their money, and to take a moderate risk. Some of this class invest as much for an anticipated rise of the capital value of shares as for dividends.
- (5) The purely speculative investor who will take a big risk where he sees a good chance of a big profit. These five classes of investors may have funds, not only for permanent investment, as assumed for the above definitions, but also for temporary disposal, and the amount of money seeking investment from time to time for short periods has usually little or no relation to the amount of money seeking permanent investment.

There are various classes of borrowers demanding capital, some on contracts for long period or "permanent" investment, others for short periods. If we regard each class of investor and the corresponding class of borrower in each locality as constituting a separate (though interdependent) market, there will be five markets for "permanent" investments, and five markets for short period investments or loans in

each financial centre. The rates of interest in each of these ten markets in one place may vary without maintaining any fixed or particular relation to one another, the only necessary relation being that in any market for investments having a risk or trouble of realising income greater than in another market the rate of interest will also be higher. It would not be correct to say that the rate of interest will be "correspondingly higher", for there is no proportion maintained between the degree of risk or trouble and the increase of the rate of interest consequent thereon. Is all depends on demand and supply. If borrowers offering "gilt-edged" security demand huge amounts of capital the rate of interest in this market rises till it nearly equals the rate of interest in the second market—that for solid steady yielding investments; but it can never rise to equal it because some of the supply in the second market becomes diverted to the first and the rate of interest rises in the second market, though not so much. Similarly if the supply of capital for speculative investment increases when a general rise of prices puts huge profits intothe hands of persons of speculative tendency) the rate of return (anticipated) in the speculative market must needs decline; and the rate of interest will decline also in the other investment markets, but to much less extent—in the "gilt-edged" market perhaps not at all.

We may now proceed to examine the character of the investments offered in each of the five markets for "permanent" investments above defined, in other words the nature of the uses for which capital is demanded, and the contractual conditions usually offered by the borrower corresponding with such uses. Taking first permanent investments we shall find that they assort themselves in the markets corresponding

with the five classes of lenders as follows:-

- (1) (a) Public Debts of national and state Governments; (b) loans of big local authorities, municipalities, port trusts, etc., which have ample powers of taxation or control of revenue; debenture and preference shares of great railway companies; preference shares of great banks and insurance companies; mortgage debentures of city property companies; and first mortgages to half market value on large city properties and great landed estates. Rate of interest (recent pre-war years): England 3\frac{3}{2} to 4\frac{1}{2} per cent; India 4 to 5 per cent.
- (2) Public debts of small foreign states; loans of municipalities, port trusts, etc.; shares of large railway companies, large banks and insurance compaines, preference shares of big steamship lines, telegraph cable companies, investment trust companies, etc.; shares of companies with state guarantee of interest for term of years; mortgage debentures of colliery compaines, land and plantation companies, and of large industrial concerns in staple industries. Ownership of large city properties and of landed estates in fertile and secure tracts; first mortgages on any saleable real estate up to two-thirds of market value. Rate of interest 4½ to 5½ per cent in England; 5 to 6½ per cent in India.
- (3) Loans of public bodies having small or uncertain revenue raising powers; shares of new and branch line railways; shares of old and shares of successful companies in all established industries; shares of companies with municipal guarantee of interest; shares of land and shipping companies, etc., debentures of proved mining companies, plantations, etc. Ownership of large house-property and of landed estates in less secure tracts. Rate of interest 5½ to 7 per cent in England; 6½ to 8 per cent in India.

- (4) Shares of newly floated companies—financial, commercial or industrial, formed for the purpose of taking over an existing business or starting new business on well established lines. Preference shares or debentures of plantation companies. Ownership of small or working-class house property, and of agricultural land in insecure districts in small holdings. Rate of interest 7 to 10 per cent in England; 8 to 15 per cent in India.
- (5) Shares in new metalliferous mining companies, in companies for promoting new inventions; speculation in commodity and metal markets and on the stock exchange; underwriting new issues of shares, buying dilapidated house property or waste land, urban or rural, for appreciation in value with or without improvements. Rate of interest over 10 per cent in England and over 15 per cent in India.

It is unnecessary in connection with the subject of this paper to examine the classification of short-term investments, as these are mainly of a commercial and financial nature, and have little to do with financing permanent works for economic development.

It will be observed that the classification I have given both of investors (supply of capital) and of investments (demand) is based primarily on the facts of the money markets as they exist in Europe and America and is assumed to be applicable to India. It is true that money markets are far less developed India than in England or America; but the experience of Bombay and Calcutta. which becoming considerable money markets, shows that they are developing on the same lines as European money markets as regards classes of investors and investments, although there is a difference in organization, the business of Europeon firms being transacted apart from that of purely Indian firms. In the mofussil

'(up-country) towns it is also correct, so far as my observation goes, to classify investors, Indian or European, in the same five classes.

Provincial Borrowing

Earlier in this paper I have already observed that the Indian structure of public loans is top heavy. This becomes clear when it is examined in the light of the classification of investors here adopted. rupee debt of the Government of India is a gilt-edged security and is to be classed (1) (a); and there was outstanding on March 31st, 1917, 163 crores. then over 80 crores of war loan have been issued. The only other public loan stock available for investors is the group of issues of the municipalities and port trusts of the five great ports, amounting roughly to twenty crores. These are very good security, but for our purpose must be put in class (2), excepting the issues of Calcutta and Bombay, which come in class (1) (b). There are no other public issues of authorities with powers of taxation worth speaking of; so that class (2) of investors are very inadequately provided for. I believe that class (2) of investors is far more numerous in India than is generally supposed. Certainly the class would grow if public securities returning a better rate of interest were available. At present with their limited opportunities for finding good marketable securities returning a better yield than Government Promissory notes, class (2) investors turn very largely to lending on mortgage of landed and city property. The issue of 5½ per cent War Bonds, which give almost the rate of interest which they consider satisfactory, doubtless appealed widely to this class. In future, however, the Government of India is not likely to be prepared to pay this rate of interestcertainly it could never pay it for permanent debt.

The conclusion to which I am led is that the principal source of funds for financing public works as yet untapped is the class (2) investor: and therefore that firstly steps should be taken to offer him suitable securities, not all uniform, but for various terms, and at different rates of interest and issue prices; and secondly necessary measures should be taken, as by popular advertisement, to emphasise the convenience and security of such investments, and thus to increase the number of class (2) investors.

When considering the kinds of securities to be offered I would give first place to loans to be issued by Provincial Governments. The present practice is for all borrowing for public works to be done by the Government of India which lends to the Provincial Governments the funds required for construction of major irrigation works and some other purposes. Certain provincial governments have long desired to have the privilege of borrowing directly from the public, but the Government of India has not seen fit to grant it. The chief reason for this desire is that a province which wants to make rapid progress with economic development finds itself hampered at every turn by want of funds. The Government of India, when only willing to pay a low rate of interest has naturally only been able to borrow a restricted amount in India each year, and only a slightly larger sum in London—usually not more than twenty crores in the year for all purposes for the whole of India. The Government of India has, therefore, been forced severely to restrict its loans to the Provincial Governments. It reviews their programs of works and decides which are the most urgent; and thus a province anxious to go ahead may only get one-half or one-third of what it could use.

From the economic point of view provincial borrow-

ing would be advantageous, because it would permit of a considerable marginal increment of capital to be borrowed from the public in any one year at higher rate of interest without the necessity of paying higher interest on the whole. Suppose, for example, that in peace times the Government of India will be able thirty crores in any year if it offers 4 per cent interest, and that it could borrow fifty crores at 5 per cent. The extra 1 per cent will have to be paid on the whole fifty crores, so that to obtain an additional twenty crores in any year it has to pay permanently fifty lakhs per annum interest. other hand if the Government of India were to borrow only thirty crores and to use it partly for its own purposes such as railway construction and partly to lend to provinces to supplement what they can borrow directly the cost to India as a whole would be less. For their own loans the provinces would have to pay interest at various rates from 41 per cent (say for Bengal) to 6 per cent. The average might be 5½ per cent. The additional 1½ per cent would be paid only on twenty crores, however; and thus the permanent annual cost of raising the extra twenty crores would be only 25 lakhs per annum.

It may be questioned whether the provinces could afford to borrow at 5½ or 6 per cent, which are the rates which the United Provinces, the Punjab, and Burma, for example, would probably have to pay. The reply is that they could well afford such rates of interest, and yet reap a handsome benefit from the capital outlay. I have been assured by irrigation engineers very highly placed in Government Service that there are many irrigation canal projects in both the United Provinces and the Punjab, estimates of which made on a very conservative basis show a net revenue of 6 per cent, which would almost certainly

be exceeded after ten or twelve years. Yet these schemes are held up indefinitely for want of funds.

When we take into account not only the direct revenue, but also the very large increase of social income which all well conceived public works create, we may remember that it is advantageous to build roads and bridges and even irrigation works which vield nothing in direct revenue, or at any rate less than the interest due on their cost, because of the great advantage which accrues to the population. Government obtains part of this increase of social income in the form of indirect revenue—not only by increase of the land revenue, which is taken into account in calculating the return on the capital outlay for irrigation works, but also through other sources of revenue, such as income tax, railway earnings, and customs duties on foreign trade created by the increase of wealth. It is bad economy, therefore, to postpone the construction of public works of any productive character merely because 6 per cent per annum would have to be paid to obtain the necessary capital.

Besides the highly important economic aspect of this question of provincial borrowing, there is also a political aspect. One great object of the constitutional reforms now pending is to achieve a real devolution, not only of functions, but also of responsibility and inititative. But it is a commonplace that the real control always lies in the hands of the man who holds the purse: and if provincial governments will still be required to obtain all their funds for large public words by borrowing only from the Government of India, the latter will retain almost as much control as at present. The Government of India can never have funds sufficient to meet a fourth part of the demands which will be made on it by the newly vitalized provincial governments. No hard and fast

distribution, as by population, would really be equitable or practicable. Consequently the Government of India must request the provincial governments to submit details of the schemes on which they propose to expend the borrowed money; and the Government of India must decide which are the more urgent, or deserving of early execution, looking at the needs of India as a whole. Excesses of expenditure beyond the estimates will need troublesome correspondence with the Government of India as at present. fact there will be no real devolution in regard to public works. To permit provincial borrowing may be said, therefore, to be a political necessity as well as an economic advantage. It is proposed in the Montagu-Chelmsford scheme to make irrigation and roads provincial subjects. The provinces should therefore have freedom to borrow, subject only to restrictions in three respects: (1) They should not be allowed to borrow in London or anywhere outside India: (2) The amount of the permanent debt of province outstanding at any time must not exceed a limit to be fixed-say twice or three times the maximum ordinary revenue realised by the province in any previous year, excluding arrears; (3) provinces must not issue any loans by public advertisement during three months in each year, if this time is needed to be reserved for the issue of Government of India loans. I do not think that any limit should be placed on the rate of interest which provinces might offer, nor on the rate of any underwriting commission or brokerage which they might pay. In such matters the provinces should be left to decide for themselves whether the best terms they can arrange provide an advantageous business transaction or not. If provincial borrowing were to be allowed on these conditions there would be a great stimulation of the political life of the pro-

vinces which would then, and only then, enter into the full responsibility of Government. If a provincial government can do no more than propose schemes and ask for money, whilst the examination of the projects and finding of funds is exercised by a superior authority, there will be real interest aroused in development schemes and no sense of responsibility. On the other hand if the province itself has to find the funds by its own efforts, members of the Legislative Council will take a more active interest in proposals and will endeavour to interest the public in them, so as to obtain subscriptions to the necessary loans.

It is very difficult to form any estimate of the probable financial results of issuing provincial loans. Very probably the amounts subcribed would be disappointingly small at first, except in Bombay and Bengal. This is to be expected because the habit of investing in a new security always takes time to develop. It is not the immediate results, however, which matter. The test of the policy of provincial borrowing will be its effectiveness twenty years after it has been commenced.

To make provincial borrowing become within a few years a source of considerable funds in comparatively backward provinces like the Punjab and United Provinces, a policy of steady development of the market must be followed. In the first place there must be no question as to the possibility of any provincial government failing in its obligations to pay interest and to repay capital when due. Imperial legislation should provide that the service of any loan must come first after provision for revenue, judicial and police services. There can be no absolute security, however, without the means of obtaining adequate resources for interest and redemption charges; consequently the provinces must be given the power of levying new

taxes, rates and cesses, within a wide range of choice, so that the peculiar conditions of each province may be utilized to the greatest advantage, the taxation of unearned incomes being particularly aimed at, as these, especially urban rents, always increase with the progress of economic development.

Assuming that a marketable value is given to provincial loan issues by giving them unquestionable security, the next point to notice is that the form of the security—whether registered, or to bearer, its term, interest, and issue and redemptions prices—should be arranged after careful inquiries and experiments so as to meet the wishes of the largest section of possible investors. These conditions any need to be totally different in different provinces; and complete freedom should be allowed to provincial governments in this respect.

The expansion of the market for provincial loan issues will be greatly facilitated by judicious and plentiful advertising, the purpose of loan and benefits that will accrue from its expenditure, the nature of the security, and the terms of issue being all very simply but fully explained. It would probably prove useful freely to employ private agencies, such as banks, stock brokers and Indian financiers to place the loan issues with their clients, a substantial brokerage commission being offered. Another plan, which some provinces might try, would be to get a big joint-stock bank or financial house to underwrite the whole, or part, of the issue, it would advertise and place either at once or gradually in the usual way.

Whatever the method of issue, it would be a great advantage of provincial loans that local patriotism could be aroused in their favor. This is a force rapidly growing in India; and appeals would be made by the ministers-to-be of the new provincial

governments in speeches in the chamber and to their constituents to stir up wealthy men of all classes in the province to assist in its economic development. Appeals would be made for funds for a particular of irrigation or roads, etc., each and persons owning property in the localities to be benefitted would doubtless do much voluntary canvassing to aid the success of the loan, and would stimulate their friends and neighbors who had money to subscribe.

Finance by Local Bodies

The question next arises as to how far local authorities should take part in economic development and themselves raise money by loans. It may be assumed that major irrigation works and main roads will always be constructed and maintained the provincial governments; but minor works, bridges and feeder roads, embankments and drainage works might often or usually be entrusted to divisional councils (as proposed in the United Provinces), district boards and municipalities. I think it will be premature to transfer much responsibility to such bodies within the next twenty years: in fact, in many parts of India, more responsibility than they are fit for has already been thrust upon them. However. so far as such local bodies are expected to carry out minor public works they should be given adequate purpose, both in revenue-raising resources for the powers needed to create security for borrowing, and by loans being freely granted to them by the provincial government. Such bodies should be given the right of borrowing directly from the public whenever they have the opportunity of doing so advantageously, subject only to supervision by the provincial government on lines similar to the control exercised by the Local Government Board over the borrowing by Town and County Councils in England.

Certain kinds of economic development, such as the improvement of rivers, development of fisheries, establishment of agricultural colonies, reclamation of waste or flooded lands, afforestation, and the building of light railways, might with great advantage be entrusted to Boards of Commissioners or Trustees, established ad hoc like the Port Trusts. These may need partly to be financed by an initial capital grant from Government, like the Improvement Trust of the cities: they should also be given borrowing powers, and if possible, assured sources of revenue. The larger Trusts established for any of these purposes, might well after ten or fifteen years be allowed to borrow freely from the public direct. Once such a Trust had got its business established and maintained as a going concern it could offer good security for loans and if necessary a high rate of interest. In many cases the appeal would be to class (3) of investors in my classification given above.

The management of such trusts presumes the existence of a number of men with business knowledge and experience willing to serve as Trustees, either gratis or for a small fixed remuneration. dition will probably not exist in many parts of India within the next half century; and it may be necessary to seek an alternative method of management and finance. This could be found, I think, in the establishment of concessionnaire companies which would be granted a charter or license to construct and work some improvement. Capital grants in aid could be made, as to the Trusts, if Government supervised the expenditure; or perhaps better, Government could guarantee a minimum interest on their share capital, or guarantee perpetually the whole interest on the deben-

tures that might be issued, reserving, of course, the right to buy out a company at any time after twenty or thirty years.

General Planning of Economic Development and Finance

This paper has already occupied much more than the allotted time, I am afraid; but in bringing it to a conclusion I wish particularly to have the opportunity of drawing your attention to some general principles affecting economic development and its finance which merit the closest attention, and have received but little. In general I would say first that all plans for economic development and its finance ought to be most carefully prepared and criticized in the light of economic theory, which is intimately concerned with the nature of such capital expenditure and its effects upon revenue and upon the social economy. The economic theory of the finance of development schemes is well understood, and its application would not only prevent mistakes being made, but also replace an oft recurring hesitation regarding what are really sound proposals by confidence and boldness in realization. I have already dealt with this subject at some length in a series of articles on The Art of Economic Development recently published 1, consequently I need not take up your time to-day by entering into theoretical questions.

It is necessary, however, to mention one subject dealt with in the articles just mentioned, namely the need for correlation of development measures which are to be carried out in any region. Hitherto there has been usually little or no effort made to reap the full benefit of expenditure on development by planning the separate measures so that they interact upon one another. If thus co-ordinated they produce a

¹ See Indian Journal of Economics, Vol. II, parts 1, 2 and 8.

combined benefit far exceeding the sum of the benefits which each could produce if carried out by itself. A little thought shows that an irrigation canal will create far more wealth if the area it waters be opened up with roads and railways so that produce may be got to market; and yet this is often neglected. planning of an irrigation canal should, therefore, always involve the planning of roads and railways also; and of market towns and all facilities for trade. When a new area is thus being opened up it is here that the agricultural department can work with prospeets of the greatest benefit from its propaganda. rather than by choosing backward or stagnant districts or trying to spread its efforts over the whole province. More schools, and better sanitation applied in a newly irrigated district will also be more effective than elsewhere; and by thus combining measures a higher standard of living may be permanently established amongst the population.

The planning may and should, however, go yet further. With the help of economic theory and of facts marshalled by statistical inquiries, the financial burdens inseparable from the early stages of economic development should be adjusted so as to fall upon these classes or sections of the population who can bear them most easily. In particular, accumulations of wealth and sources of income which have been created by settled government and measures of economic development in the past, but have hitherto escaped their just contribution to Government funds, should be searched out and taxed for the purpose of providing funds for further development.

There are grave inequalities in the incidence of taxation in India; and were it not for the political complexion which such questions will soon obtain, I would advocate their correction as part of a general

scheme for the finance of economic development throughout India.

For instance, if we take the incidence of total Government revenue per head of population in each province, we find surprising differences, such as the following:—

	Per head Rs. 12-0	
Bombay Presidency		
Bengal	Rs. 5-8	
United Provinces	Rs. 2-11	
Punjab	Rs. 4-12	

The figures of incidence of land revenue per acre of cultivated area are also worthy of attention. For the older province they are as follows:—

INCIDENCE OF LAND REVENUE PER ACRE OF CULTIVATED AREA

	Rs.	88.	p.
Bengal (permanently settled area)	0	15	10
Bihar aud Orissa (permanently			
settled area)	0	7	11
do (temporarily settled)	1	1	2
Madras (permanently settled)	0	18	6
do (ryotwari)	2	8	11
Bombay	1	5	7
Agra (temporarily settled)	1	18	8
Oudh	1	15	11

It will be observed how low is the average assesment in the permanently settled areas. The variations in temporarily settled areas depend upon: (1) climate, (2) soil differences, (3) state of economic development, (4) revenue policy.

In planning new ways of raising funds it appears to me that the best policy is to discover all important sources of wealth of the nature of unearned increment and tax these. I may very briefly indicate here some of the more important:—

¹ Figures taken from the Agricultural Statistics of British India for 1915-16, Vol. L. Some of the figures relate to easier years—the latest available.

- (1) In Bengal, Bihar and Orissa, and Madras, revision of the "permanent" settlement by direct or indirect means with the consent of a popularly elected Legislative Council in each province; and taxation of mineral royalties.
- (2) In Bombay, Agra and Oudh, and temporarily settled parts of Madras, by a cess of 30 per cent on the land revenue, but subject to reduction if the total of land revenue plus cesses exceeds 50 per cent of the assets at the time.
- (8) In the Punjab by the sale of colony lands to settlers on deferred payment system at the approximate market value (Rs. 100 to Rs. 400 per acre) instead of at the nominal figure of Rs. 12-8 per acre. If in the past land had been sold at a figure more nearly corresponding with its market value, a very large amount of capital would have been available for developing the colonies with metalled roads and light railways. The communications are at present quite inadequate.
- (4) In all growing cities and urban areas throughout India land values are rising rapidly, and either the income from urban land, or the increment of market value should be taxed.

These sources of funds are all such as can be most properly drawn upon for purposes of economic development, because they are precisely of such a nature that they will be further augmented by the very measures of development which they are used to finance, assuming the guiding principle to be that the funds are expended in the area from which they are specially derived. It does not matter whether the new funds are used directly for capital expenditure, or whether new revenue is used to support loans, as well as for recurring expenditure on agriculture and trade instruction etc. I do not propose, of

course, that taxation for this latter purpose should be limited to the sources of funds which I have named.

Summary

In conclusion I would like briefly to summarize the chief proposals made in this paper for the finance of economic development. After showing that the financial position of India is extraordinarily sound, I suggested that the profits of the commercial services might be reserved for various purposes of economic development, and that the small deficit on the ordinary civil and military expenditure should be made up by increased taxation—perhaps customs duties. As sources of capital funds the profits of coinage beyond the requirements of the Gold Standard Reserve, and the fiduciary portion of the Paper Currency Reserve, could safely yield very many crores of rupees; but to obtain the enormous sums of money needed for intensive development on the lines of western countries recourse must be had to borrowing on a very large scale. The public debt system as a whole in India being top heavy, the initiation of provincial loans was recommended, and the gradual enlargement of the market for them by suitable propaganda. Certain works could be carried out by local authorities or boards of trustees created ad hoc, and both should be given ample funds for the purpose, or the opportunity of raising them by loans. Finally I referred to the importance of the proper correlation of different development measures so as to obtain from them the maximum advantage; and I proposed that in connection with the planning of development measures in any region, sources of wealth at present partly or wholly untaxed should be searched out and be made to bear their just share of the burden of taxation. Instances were given of sources of

funds which might be justly taxed because those sources themselves would benefit from the dovelopment measures.

Just as there is no panacea for the poverty stricken condition of the cultivators in so many parts of India, so there is no royal road to financing economic development. All methods need to be tried: every one that proves safe and in any degree successful should be employed until the limit of its practicable utilization is reached. The further economic development proceeds the easier will it be to raise the necessary funds for further development. Once the great "snowball" of economic progress is well started on its path it will grow in weight and volume; and the ingenious financier will always find old sources of funds expanding, and new ones opening out for him. The need of the immediate future is to get development started upon a scale adequate to the huge area and vast population of this Empire. He who hesitates is lost. Let us go forward as boldly in the works of peace as we have done in war.

THE EARLIEST AGRICULTURAL ORGANISATION IN INDIA

AND ITS METHODS

PROFESSOR PRAPHULLA CHANDRA BASU, M.A., B.L. HOLKAR COLLEGE, INDORE, C. I.

I propose to deal with the agricultural organisation of the Aryans in India so far as that can be gathered from the earliest extant literature, the Rig Veda. But before going into the actual agricultural system it is necessary to understand clearly the nature of the rights that subsisted in the land on which the village or the grama built its habitat.

Private Property¹

This naturally leads us to a preliminary study of the growth of ownership in land as it developed during the period of the Rig Veda. The idea of private property in land, the ownership vesting in the individual, is the last thing that a people develop, because it is directly the outcome of a series of abstract ideas. First there must be the idea of possession. It must be based on the conception of some abstract right emanating from prescription, which would

¹ This portion is taken from the author's book, Indo-Aryan Polity during the period of the Rig Veda.

condemn any intruder who comes in by the same right to squat and appropriate as the original man. This possession would thus develop into and confirm ownership. This is too much for a community which is just emerging out of a nomadic state and which, in the beginning, finds ample land for appropriation without any occasion for dispute.

The elements of religious beliefs with which the Arvans separated from the original Asiatic home were worship of the dead ancestors and worship of the gods of physical nature. The influence of the new environment wrought its work and brought about, in the earliest stages, the predominance of the former in Greece and Rome, and of the latter in India. Indra and Agni, Varuna, the Maruts, Ushas, the Ashwins and all the Vishwadevas were deities presiding over some natural phenomena. It is not within our scope to trace this development in the changed environment. But we recognise the fact as established in the Rig Veda. The bifurcation of the original religion seems to have been complete. Most of the illustrations drawn by Fustel de Coulanges 1 from India his comparisons of Graeco-Roman and institutions are drawn from the Laws of Manu. a much later work than the Vedas. Latter day India did develop her religion of ancestor worship; that was in the Pauranic age, but in the Rig Veda Angirasas and the pitris are not gods of the first rank.

Thus it is clear that the peculiar religious beliefs of the Aryans were not the cause of private property in India. Nor can we say that anything like the Norman invasion and the Christian Church accelerated the growth of individual ownership of land in India as they did in Teutonic Britain. To what then is this early growth of private property due? The

¹ The Ancient City.

explanation must be more or less a theory, since we cannot corroborate by referring to any texts previous to the Rig Veda, and in the Rig Veda private property is so easily accepted that it shows only the earlier establishment of the institution in all its completeness. think the only reasonable and explanation lies in the economic causes. Malthusian principle of population be combined with the Ricardian principle of intensive culture of the soil, the same results would follow as in India. The Aryans found a soil which was more fertile and less trying for them to live in. The extreme cold was not there, nor were present the enervating effects which are said to be the curse of India south of the Punjab. The first settlement was effected by extirpating or displacing the non-Aryans. The land fell to the Aryans. The cultivation yielded fruits beyond all their previous experience. The spirit of adventure that is the backbone of a conquering race, combined with abundance of food and a bracing climate, would give the greatest impetus to the multiplication of the race. None of the Malthusian checks, either positive or preventive, except in occasional wars, could have prevailed at that time. The fertile soil gave produce in abundance, so much so that its limits could never have been reached, at an early stage, by the increase of population. All these forces would combine to accelerate the growth of population. The fecundity of a race grows and becomes part of it, just as any other social or moral characteristic. Thus the Arvans began to grow in numbers. At the same time they were limited, as to further territorial expansion, on all sides by the mountains, the sea and the non-Aryans who were an active race. The capacity to multiply grew whereas the extent of the territory could not be so increased. Thus in time there was felt the pressure

of population; and the people had to take recourse to less fertile lands and to the intensive culture of the soil. With time this pressure increased continuously, leading to adventures by sea and further expansion towards the south.

In India the Arvan culture of the time of the Rig Veda was much superior to that of the Teutons in Frisia. Their arts and crafts, their methods of agriculture and warfare, their construction of the chariot, the bow and the arrow, the houses, all point to this. Simultaneously they point to some thing else. Agriculture or housebuilding could not have developed so much during the nomadic state, nor could the arts of navigation be developed without big rivers and a sea. The assumption becomes irresistible that the Aryans had lived in India for a considerable period before the composition of the sacred hymns of the Rig Veda. If so, that confirms our theory of private property. Originally there was no economic pressure of population and therefore no need of intensive culture of the soil. But with time this grew and with intensive culture the ownership of land was gradually evolved. The rapidity of development along this line would exactly correspond to the severity of the pressure of population within, and that of the non-Aryans without the Aryan settlement. It was only intensified by the development of agriculture failing to keep pace with the tremendous increase of population. economise the energy of the race and to give it stimulus, the land had to be made the subject of private ownership, so that the certainty of effects would lead to the greatest improvements of agriculture that were possible with the known methods. Of course all these arguments did not appear to them. They were impelled by the economic needs and adapted themselves to the changing environment. In doing

so they gradually slipped from the state of communal ownership, if ownership at all there was, to that of individual ownership, the head of the family being the real owner.

In such a state of society the land, the property, would be recognised as part of the wealth of the individual. We have abundant evidence of this in the Rig Veda. Reknas meant inherited property and as such it is included in rai or wealth in general.1

Pasturage and Agriculture

The question can be asked pertinently in this connection whether the Aryans at this stage lived a pastoral or an agricultural life. The answer to this can be given more or less definitely. They were settling down to a life of agriculture and indeed agriculture developed very highly. But at the same time pasturage was undertaken universally. The fact is that their pastoral habits were as much in evidence as their agricultural ones. A race that is settling down to a life of agriculture must remain for long primarily pastoral, because the two are mutually helpful in the economy of primitive man. course pastoral life tallies more with the nomadic state than with a settled one, because in the nomadic stage of life, hunting and pasturage are the mainstay of the people. That is why we find that the ancient Teutons with very little known arts of agriculture, were proceeding towards Frisia along the Elbe and always halting by the side of a river or in a valley where they could get good pasture lands and where, probably, they could get as much fish and flesh as were necessary for their maintenance. Otherwise for purposes of protection we would expect them to travel by the natural fastnesses only. Before

¹ i, 81, 14; i, 121, 5; i, 158, 1; i, 162, 2; vi, 20, 7; vii, 4, 7; vii, 40, 2.

they settled down in Frisia they already knew the rudiments of agriculture. But agriculture by a nomadic tribe, living in one place for two, three or five years, cannot develop much, and the more scientific and the more efficacious system of intensive culture of the soil and alternating cultivation with fallow cannot develop in such a state. The ever shifting strip of the German mark-land could not have been favorable to such progress. It is uncertain whether the predominant element in Frisia was pastoral or agricultural. But when they came to Britain they were already settling down to a life of agriculture which continued unabated even when the war of conquest was going on with the stubborn but retiring Welsh. Yet even now pastoral life was not the least important aspect of their busy life. So, it need not surprise us if we find that the Indo-Aryans in the age of the Rig Veda were pastoral but at the same time expert agriculturists, having individual ownership of land and not varying plots. They knew the arts of fertilizing the soil by artificial means, had some irrigation system and used to manure their lands for the purpose of improving the natural qualities of the soil. The process of sowing and reaping the crops, the threshing and the winnowing as well as their means for measuring the corn, all testify to the amount of progress that they had achieved even in the time of the Rig Veda.

The Monsoon

It will indeed be interesting as well as important to learn all these in detail as far as it is possible to know them from the Rig Veda. It is not exactly certain whether they were acquainted with all the aspects of the Indian monsoon, which is even now the only crux on which a fruitful cultivation of the

soil depends. But as they knew the division of the year into seasons and also the rains coming on to fertilize the soil, it might not have been impossible for them to look for the rains as the great benefac-There is a good number tor of krishi or cultivation. of hymns in the Rig Veda to the Maruts and in some of them it is possible to read the propitiation of the deities as the approaching south-west monsoon. Of course we must not expect the scientific knowledge which, by the help of the meteorological department, we get to-day.

We find in the earliest portion of the Rig Veda a hymn (i, 19, 7-8) in which Agni and the Maruts are recognised as those who scatter the clouds and agitate the sea, and who spread through the sky. along with the rays of the sun, and, with their strength, agitate the ocean. Rishi Kanwa again, addressing the same deities, speaks as if they are riding along the firmament. They are the agitators of heaven and earth (i, 37,6). The householder plants firm buttressess to protect his family and cattle (i, 37, 7). Maruts drive before them, in their course, the long, vast, uninjurable and rain-retaining clouds (i, 37, 11). aloud over the earth and draw open the tight-fastened. downward-turned water bag, and may the high and low places be made level. Raise on high the mighty sheath of rain, pour down its contents; let the rivers flow unimpeded: saturate with water both heaven and earth and let there be abundant beverage for the kine." Finally, perhaps after it has rained sufficiently, the hymn goes on: "Thou hast rained, now check well the rain: Thou hast made the deserts capable of being crossed thou hast given birth to plants for men's enjoyment; verily thou hast obtained laudation from the people." (v. 83). This is the strain of all the hymns to the Maruts.

It may appear to some, unacquainted with the climatic conditions of the Punjab, that this praise of the rains is in hyperbolic language. Of course we do not know exactly if the climate of that part of India has undergone a reversal of what it was in the Vedic Age. But the probability is that although it may have changed much, yet it is not an altogether new thing. The rivers were wider and more fast-flowing even in the time of Alexander. The sea was perhaps nearer than it is now. The desert of Rajputana must have been less arid and less extensive than it is now. This latter fact will be evident from the abundant rainfall described in the last passage that we have quoted from the Rig Veda, whereas the modern monsoon can rarely bestow much water there, the water vapour being absorbed by the hot desert air and carried directly towards the Himalayas without letting in much to the arid and irrigation-cultured Punjab. Making all these allowances, it seems that the climate of the Punjab as it was and its climate now must agree in fundamentals, for example, in the extremes of heat and cold, want of much water for cattle etc. The present writer has had some experience of the modern Punjab and he appreciates fully the sentiments expressed in the Rig Veda when he recalls to mind the parched months of May and June, and how delightfully agreeable must have been the advent of the rains in such a climate at a time when the modern system of extensive canal irrigation did not exist.

Fields

The organisation and arrangement of fields are very interesting and instructive showing the holding of the cultivated lands and also the waste lands lying between them. Agriculture must have been universal

in the period of the Rig Veda as will be seen from the practice of intensive culture of the soil. There is almost a continuous reference to fields and cognate matters in the whole of the Rig Veda, showing the very great importance of agriculture. Various words have been used for the fields or cultivated lands, for waste land and ploughland. We shall take them up in turn and study the conditions of agricultural life of the Aryans of the time.

Urvara

The word urvara occurs repeatedly in the Veda in the sense of fertile land or ploughland. antiquity of this word may be traced to that early period in the history of the Aryans when they had not separated in different directions. In Greek the same word, practically in the same form, occurs for the same idea. Aroura stands there for what urvara means in the Rig Veda. So that philology would establish unequivocally the origin of cultivation of fertile lands, however crudely it might have been, in that distant Asiatic home of the Aryans. Urvara in the Rig Veda means the land which is acquired for purposes of cultivation. But whatever is acquired for cultivation may not be equally suitable for the purpose; some naturally would pay for their cultivation, while others would not, so there must be the distinction between fertile land and waste fields. In the Rig Veda apnasvati means fertile, whereas artana means waste fields (i, 127, 6). There is some uncertainty as to whether these are sub-divisions of urvara lands or whether urvara should be identified with apprasvati. Whatever that might have been the point for us is that the people made the distinction, even in nomenclature, between culturable lands and waste lands.

¹ i, 197, 6; iv, 41, 6; v, 88, 4; vi, 25, 4; x, 80, 8; x, 149, 8.

The fields were not held in communal ownership, but each householder had his separate share which belonged to him definitely. This is proved by various passages already quoted and, with regard to the urvara, by the three prayers of Apala, the daughter of Atri when Indra, being pleased with her, consented togrant her three boons, she asked him to cause three places to grow, one of which is her father's barren field (viii, 91, 5-6). This fact of individual ownership of the urvara land is further confirmed by a reference to the winning of lands. After getting them through the favor of Heaven and Earth, Trasadasyu is to have bestowed upon many the ancient gifts which include urvarasa and kshetrasa (iv, 38, 1). Indra is again called urvarajit (ii, 21, 1); whatever may be the meaning of jit, it is clear that, whether by conquest or as adhipati (as Sayanacharya explains it) he is the owner of the urvara land. The exexpression urvarapati is again used in connection with children (iv, 41, 6), which may have some significance as to the nature of the authority that could Thus it is evident that be exercised over the lands. urvara or land acquired for cultivation was held in individual ownership.

Kshetra

Kshetra is another word which means usually field. It seems to be of wider significance than Urvara, which is corn land, i.e. cultivated field. But this distinction is not so certain, and it would be advisable not to press it too far. Like urvara, kshetra was also subject of individual ownership (iii, 31, 15). Rishi Kavasha, in consoling Upamashravas on the death of his father, alludes to a pleasant field being given to a beggar (x, 33, 6). Surely what could be given away to the beggar made the kshtera subject

to his separate ownership. Further, the son of Svitra is said to have been protected by Indra, when the former was fighting for his land. kshetraies (i, 83, 15), or, it may be, for the acquisition of land for himself. Trasadasyu, through the grace of Heaven and Earth, gained land, kshetrasam (iv. 38, 1). As a corroborative evidence we may accept that the expression, kshetrasya pati, used in many passages1 meaning lord of the field, i.e., the presiding god of field, indicates that there the was separate deity for the separate fields. But this is more or - less uncertain and it may be so interpreted only in the light of the other passages cited above, establishing the fact of individual ownership of the kshetra.

Measurement of Kshetra

One important fact in connection with the kshetra is that it was very carefully measured off, so that the lands of each might be easily distinguished. This looks like the modern Cadastral Survey. We do not exactly know what was the principle or what was the immediate object of it, but reference to it in an early passage (i, 110, 5) in the Rig Veda may be safely taken as conclusive evidence of the existence of such measurement. Here it must be remembered that there is no such reference with regard to the older and the more important division of land, the urvara. The reasons may be various. Urvara and kshetra may have been used for the same field, so that what applied in the case of one applied as well for the other, or, it may have been that the kshetra was supposed to be more important than the urvara which may have been the relic of an age when agriculture was not sufficiently developed. But the more probable explanation seems to be that the

¹ iv, 57, 1-2; vii, 85, 10; x, 66, 18.

distinction between kahetra as meaning all the fields of a man's "holding" and urvara as the cultivated portion only was one of real vitality. Kshetra was the subject of private ownership as well as urvara. But naturally the urvara portion of one would fall under, and therefore be included in, his kshetra por-And if the kshetra was carefully marked out and measured, the urvara of one person was necessarily distinguished from that another. This of explanation assumes that the measurement was for the purpose of distinguishing the owners of land, rather than that of different kinds of land of the same owner. This assumption is quite reasonable if we remember that the property of the family was the property of the father; and that the family was never in the Vedic age a corporation jointly holding property. If so, what need was there to divide one individual's ploughland from his other lands by such careful measurement? The only conceivable necessity might have been for ascertaining the rights of the State, and from a study of the political condition of the time we find that this need did not exist 1.

From the foregoing discussion it must not be inferred that kshetra includes the waste land as well. Its frequent use in connection with cultivated lands tends to imply that the system of fallow was known to the Aryans, and that all lands which were capable of cultivation or which were cleared and acquired for cultivation came under kshetra, whereas urvara would imply the actual ploughland, that is, land under actual cultivation, thus excluding the fallow and perhaps the meadow land. On this point it is impossible to be certain, specially when the word kshetra has been used very vaguely in some passages in the Rig Veda*.

See the author's book, Indo-Aryan Polity during the period of the Rig Veds.
 i, 100, 18; ix, 85, 4; ix, 91, 6.
 v, 9, 8; v, 45, 9; vi, 47, 20.

Waste lands: Khilya

We also come across waste land where the cattle used to graze. Khilya is used in this sense in the Rig Veda. Agni or Fire is propitiated so that he may not, as he has done in some cases, lay waste the sites of the tilled fields (x, 142, 3). But it is uncertain whether the waste lands were scattered between the cultivated lands as some think them to have been or whether they were, like the Teutonic waste lands, entirely separate and distinct from the cultivated lands. The use of the expression abhinne khilye (vi, 28, 2) is perplexing. Sayana takes khilya as waste land, but gives it a special meaning in this passage as apratihatasthanam, an unassailed or unassailable place, that is, anyair gantumashakye sthale, one which is unapproachable by others. This special meaning is attached to the word khilya because of the adjective abhinna, which is explained as shatrubhirabhettavya, that is, "not to be breached by enemies." The expression would thus mean, according Sayana, an inaccessible fortress. This is of course an unusual use of the word khilya.

Another word, pharvara, is used which is of rather uncertain meaning (x, 106, 2). It may mean a field in bloom, which, in connection with the context. would mean pasture land overgrown with weeds due to want of care.

But as we have said already artana certainly meant waste land, and as such it was always recognised as part of the land of each grama.

Cultivation or Krishi

We now come to the actual process of cultivation. Krishi in Sanskrit means ploughing, and the different forms of the trish—to plough—is frequently used in the Rig Veda. In an early text (i. 23, 15) Rishi

Medhatithi alludes to a husbandman who repeatedly ploughs for yava. Again Indra is praised as one who causes men's desires to bud like yava (i, 176, 2). Later on, the gamester is advised to give up gambling and pursue krishi or agriculture (x, 34, 13). Rishi Devamuni, in addressing Aranyani, the tutelary goddess of the forest, says that it is akrishivala, that is, "not agricultural" (x, 146, 6). Again the ploughshare, furrowing the field, is said to provide food (x, 117, 7).

Implements of Agriculture

Let us now turn to the exact process of cultivation and the instruments used in connection with Knaia was the name given to the ploughman He was thus differentiated from others (iv. 57, 8). who might have been doing other work in the fields. these differences refer to the different Of course functions only and do not ipso facto prove such division of labor was universally prevalent. same person might have been doing various functions and so might be called knaia, gopala, etc. The knaia used to cultivate land by means of plough. Stega is doubtfully interpreted as the ploughshare, its meaning in the Yajur Veda Samhitas being distinctly something else 1 But phala certainly meant ploughshare in the Rig Veda. The prayer is found thus: May the ploughshares break up the land happily ploughshare furrowing the Again the (iv. 57. 8). field provides food for the ploughman (x, 117, 7). The furrow itself was called sita and, in an agricultural age, must have been held in very high esteem. we see it personified and propitiated: "Auspicious Sita, be present, we glorify thee that thou mayest yield us abundant fruit (iv, 57, 6). The lay Indra take 1 Taittiriya-Samhita ₹, 7, 11, 1;

Vajasaneyi Samhita zzv. 1.

hold of Sita; may Pushan guide her; may she, well stored with water, yield it as milk, year after year" The whole plough was known, as it is (iv. 57, 7). known even now, as langala. In the Rig Veda one hymn says: "May the langula furrow happily" (iv. 57, 4). It was also known as sira (iv. 57, 4). Rishi Budha, perhaps on the advent of the rains. asks the people to harness the siras (x, 101, 3), and, in the next verse, says that the wise harness the ploughs at that time. The plough was drawn by one ox, as it is now-a-days (iv, 57, 4). At the time of harnessing the plough, the yoke had to be kept asunder (x, 101, 4). This perhaps shows that the cultivation was with the help of one ox, rather than two. But the point is doubtful since in the later Samhitas there are copious references to the sira being drawn by six, eight, twelve or even twenty-four oxen. When the ox at the plough slackened its work the astra was used as a goad to make it mindful of its work.

Irrigation and Manure

The ancient people did not depend on the natural water of the river and the rains alone. The arts of irrigation as well as the use of manure were known to them. The use of the word, khanitra, shovel, wherewith to dig wells, etc., is mentioned in one passage (i, 176, 6). It is said that the use here is metaphorical. But metaphors can be conceived only when actual counterparts of them exist in fact. Even if we leave out this reference as of doubtful significance as a proof of irrigation, we are not in want of further evidence for our purposes. Elsewhere (vii, 49, 2) it is found: "May the waters that are in the sky, or those that flow on the earth, those whose channels have been dug, etc." This is explained by

Sayanacharya as khanitrima, khananena nivritti, that is, formed or perhaps stopped by digging canals or reservoirs. In either case this is a clear proof of the practice of irrigation. In addition to the system of irrigation, the Vedic Aryans also used manures to fertilize the soil. In this connection excrements were utilised, and we find the Ribhus separating the sakrit or dung from the other parts (i, 161, 10).

Reaping, winnowing, etc.

While engaged in agriculture the people must have been watching for the fruits of their labor most anxiously. The first green shoots must have gladdened their hearts. Thus green shoot or tokman was a joyous thing. We find its growth compared with the growth of Manu (savarni) (x, 62, 8). As the corn grew up like glad hope they reaped it when ripe. and for this purpose the sickle most probably was in use. Considerable doubt has been expressed as to the right meaning of the word srini (i, 58, 4), but it is impossible to deny the existence of some such implement for reaping the corn, specially when we know that the ancient people developed many of the arts using ayas or metal. In one passage it is said that the corn was cut with the help of srini and piled up in bundles (viii, 78, 10). Further the wish is expressed that the grain may grow and fall ripe towards the srini (x, 101, 3). In another passage we find that the grain was separated after it had been cut (x, 131, 2). This sloka contains an expression which is highly suggestive. Anupurvam viyuya indicates a knowledge of a succession of crops which shows an important advance in agriculture. This has been controverted by some, Cowell being one of them. But Sayanacharya's authority is very great and he seems to be certain about it. However that may have been, the

grain, after it was cut, was put into bundles and the sheaves were thrown on the threshing floor. parsha on the khala is alluded to in a hymn to Indra Vaikuntha (x, 48, 7). Thus separated from the chaff, it was still coarse grain and unfit for human consumption. At this stage it had an entirely separate name, saktu (x, 71, 2). The next process was to winnow it, separating the chaff from the grain. Titau in the Rig Veda stands for the sieve or the winnowing fan. "The wise create speech through wisdom winnowing it as men winnow yava with a sieve" (x, 71, 2). The winnower was called dhanyakrit (x, 94, 13). After the grain had been thus separated, it was stored up. this connection the word urdara is differently interpreted (ii, 14, 11); Sayana renders it into granary, whereas others say that it indicates some measure for For the same idea sthivi is also used in the plural (x, 68.,3). In view of the conflict of opinions, it would not be safe for us to accept it definitely either as a granary or as a measure, although it must mean either the one or the other of these two.

Agricultural Products

It remains for us now to study the agricultural products of the time. In this connection it is most unfortunate that from the available materials in the Rig Veda it is extremely difficult to ascertain exactly the grains that were produced by agriculture. All the words used for grain have had some special meaning in the later Samhitas which was not the meaning in the Rig Vedic age. But one fact stands out as certain, that is, that the people of the time produced more than one kind of grain. This is proved by the various words used to denote products of agriculture. Probably it was an age during which they had just learnt the cultivation or use of some new products,

special name. These names then were usually used for all kinds of grain, although there might have been some attempts to specialise one for any particular grain. From the very brief and indirect reference in the Rig Veda, it is not possible, at this distant date, to reconstruct the moulding thought and nomenclature of the time. We shall therefore examine each of these words and refer them to the contexts where they occur and try to learn the nature of the use to which each was put. This is indeed disappointing, but we cannot help it for want of sufficient information.

First let us take the word yava, which is by far the most important in this connection. In later days its meaning was unambiguously "barley." this was one of the most important products of agriculture during the period just after the Veda. Next in importance came vrihi or rice. But vriki does not occur in the Rig Veda, and although uava is used frequently, it seems to be used as a general term for grain, that is, any agricultural product. A husbandman is said to plough the earth repeatedly for yava (i, 23, 15). This repetition may either refer to its culture year after year, or more probably to its cultivation more than once in the same year. The latter interpretation tallies with the mention of the various seasons of the year. If this grain was produced twice in the year, it might have been barley, as that would stand two cultivations on the same soil in a country like the Punjab. Indian soil is unusually productive and even now rice (rabi and kharif) is produced twice in Bengal and three times in Madras. 'It is improbable that rice was meant in this passage. It had a distinct and entirely different name, vrihi, in the later Samhitas. If vava meant any special grain, it must have been

barley. Yava was one of the most nourishing kinds of food for the people. Agni protected the people and nourished them as yava did (i, 66, 2). Yava was sown with the monsoon. The Adhwaryu rejoices at its approach, like yava at the fall of rain. With yava some preparations of cake were made which were sweet to eat (viii, 2, 3). Yava also was used as fodder for the cattle and it must have been very useful for the animals, since its effect on the cattle is said to be the same as the sustenance given to man by Indra (viii, 63, 9). We have taken here all those instances where yava may have had some special meaning. But from the above it will be seen that we shall not be justified if we attempt to restrict it either to barley or to any other grain in particular. Besides these there are various other passages in the Rig Veda where the word yava occurs in the most general sense of grain.2

If we look now to the other word, dhana which occurs as frequently as yava we find that the same significance difficulty arises as to the exact the word, so that the people of the time either did not distinguish one kind of grain from the others, or their distinction is not properly reflected . The latter seems to be proin their nomenclature. bable, since the distinct words used may be taken as an indication of the different grains known and cultivated at the time. Dhana in the Rig Veda is used in the plural, except when the adjectival form, dhanya, In more recent Sanskrit it means rice, and from its use in several passages in the Rig Veda this meaning may be attributed to the word. the difficulty is that in the later Samhitas there is an entirely different word vrihi, which stands for rice. Its so early mention in the next Samhitas at the same time makes it probable that rice was known

¹ ii, 5, 6; v, 85, 8; viii, 22, 6. 2 i, 117, 21; i, 185, 8; i, 176, 2; ii, 14, 11; vii, 8, 4; viii, 78, 10.

even in the period of the Rig Veds. This becomes a plausible explanation if we consider the fact that in several references dhana perform many of the functions In offerings to Indra dhana were prepared of rice. into a food by being steeped in clarified butter (i, 16, 2); in modren times charu is prepared out of rice exactly in the same way. Cakes were made out of dhana and then they were baked (vi, 29, 4). Here, on the contrary, it seems that rice could not have been meant unless they pounded dhana and then made the cake. Dhana were considered to be a suitable food for the gods; for example. Indra was asked to take them: Sadrisiraddhi dhana, that is, "eat suitable grain" (iii, 35, 3). Dhana were sometimes parched (bhriji) and then taken (iv, 24, 7). This passage again makes it probable that dhana meant rice. Rice can be parched either in the sun or in hot water, or fried in hot sand, etc.; and these form even now some of the most popular and cheap eatables of rural India. Dhana again were regularly mixed with Soma in preparing the offerings at the sacrifices 1.

Thus we see that the agricultural organisation of the early Aryans was much more complex and developed than what we could at first imagine. All the necessary processes were gone through by the people of the time. Their system of cultivation was neither the crude one of the travelling Teuton nor even that of the settled Briton in the island. They had advanced much further, though in time they were earlier by at least twenty centuries. Not only was the whole process separated into parts, one after another, with all the nice details, but they had different names for each of these, which fact abundantly proves the superior culture and the more complex ideas attendant on it.

¹ iii, 48, 4; iii, 52, 1; viii, 91, 2.

2 Cunningham's Growth of English Industry and Commerce, Early and Middle Ages.

ECONOMICS IN ANCIENT INDIA

PROFESSOR BALKRISHNA, M.A., F.S.S., F.E.S., GURUKUL COLLEGE, HARDWAR, U.P.

The subject of Hindu economics has hitherto been lamentably ignored even by Indian scholars and the world has come to believe that the Hindus have contributed absolutely nothing to the development of the science or art of economics. That we do not exactly know of the full growth of this body of knowledge is undoubtedly true, but that there are numerous and incontrovertible evidences of its existence is actually sure. Again up to this day there been a lamentable want of precision in the rendering of the Sanskrit words vartta and artha-Many Indian writers have indistinguishably taken them both to be equivalent to the modern science of economics. But there can be nothing so far from the truth. This huge mistake is being constantly repeated in our Indian writings. We ought to be cautious in the use of these words, and should not be misled by their etymological meanings. the words are undoubtedly significant. Vartta derived from vritti, 'profession', a means of livelihood, hence vartta is the name of that body of knowledge which teaches us means of the production of wealth. While according to its root meaning arthashastra is the shastra (science) that relates to wealth or artha Digitized by Google which consists of land and all sorts of earnings of men inhabiting this earth. In actual practice, however, the spheres of *vartta* and *arthashastra* have been vastly enlarged. This will be clear as we proceed.

We will first adduce a few evidences of the existence of these sciences.

- (a) The Hindus have counted 32 primary sciences, and 64 principal arts, from times immemorial, and they were categorically numbered for the first time in the political treatise of Sukra, a most prominent philosopher, moralist, economist and statesman of ancient India. But in many other treatises even these 32 primary sciences have been reduced to 14, the last of which is invariably our Arthashastra.
- (b) Then the Agni, Markandeya and Vishnu Puranas count 18 sciences which were diligently studied by all seekers of knowledge in ancient India.

They are:—four Vedas, six supplementary sciences, logic, Mimansa, Puranas, law-codes, medicine, military tactics, music and arthashastra. The scinece of artha has been placed last of all only because it is a semi-Veda attached to the Atharva-Veda which ranks last among the four principal Vedas. Moreover all the three Puranas have used the more popular word—Arthashashtra in the place of the archaic Artha-Veda.

- (c) The Arthashastra has, moreover, been always called an adjunct of the Atharva-Veda, because it deals with economic subjects more than any other Veda, for instance, the Charana-Vyuha (500 B.C.) which gives an epitome of the whole Vedic literature speaks of Arthashastra as the Upa-Veda, 'supplementary science', of the Atharva-Veda.
- (d) Now Shri (Ceres), the Goddess of Wealth, the renowned consort of Vishnu, the God of peace and plenty, has been praised in the Vishnu-Purana as follows:—

"Thou art the science of Dialectics, thou art the three-fold knowledge of the four Vedas, and thou art Vartta, and thou, too, art the knowledge of the four Vedas, and thou, too art the knowledge of Government etc."

(e) According to the primeval law-giver Manu, (VII. 89), a king ought to be well-versed in the following sciences:---

"The three-fold sacred knowledge of the four Vedas, the primeval science of Government, logic. ethics and Vartta.

(t) The qualifications of kings according the Yajnavalkya-Smriti (1.309-311-317) are that thev should be well read in law, logic, the four-fold Vedic knowledge, polity and Vartta; that they should try to acquire by four means objects not acquired; keep carefully the acquired ones, multiply the protected ones according to the laws of political economy and distribute the surplus wealth to worthy persons.

Antiquity of Economics

It is traditionally known among the Hindus that Arthashastra was revealed by Vishwakarman in various treatises on 64 mechanical arts for the improvement of such as exercise them. This god has been praised by the Puranas as the originator of a thousand arts, the designer of all ornaments. the manufacturer of all sorts of airships, and a profuse writer of treatises on all arts and sciences concerning the production of wealth-works, whose study becomes a fruitful source of livelihood for the whole of mankind. But we have a different version of the beginning of this science in the great work of Chanakya, the Indian Machiavelli, who was Prime Minister to the most celebrated monarch Sandrakoptas, of world-wide fame, who defeated Seleukas Digitized by Google

Nikator and got possession of the Maghada Kingdom by the help of this Arch-Minister. In his Arthashastra as we now possess it, the portion dealing with economics proper is missing, but we find a few traces of the science and art of economics scattered here and there. In the very introduction to this admirable book it is most plainly stated that the present work was based upon the economic treatises of many preceding preceptors. In fact, Chanakya alludes to his predecessors no less than one hundred and fourteen times, and amongst others he mentions the names of sixteen scholars such as Manu. Parashara, Pishuna, Bahudanti-putra, Katyayana, Brihaspati, Bharadwaja, Kampadanta, Dirghacharayana, Kinajalka, Ushanas, Vishalaksha, Vatvyadhi, Kaninaka-Bharadwaja, Ghotamukha, son of Pishuna (pp. 15, 31, 37, 71, 225, 314, English Translation).

It is therefore evident that the quest for the laws of wealth and the attempt to embody the results in systematic treatises originated with the great law-giver Manu. The work once started was taken up by various scholars in different ages and the names of the most distinguished alone must have been mentioned by Kautilya.

The Scope of Vartta

(1) In the celebrated work of Kautilya Vartta is defined as "the science which deals with agriculture, cattle-rearing and commerce. It is most useful in that it enables its student to command the labor of others or grains, cattle, gold, etc., the products of the labor of others. In short, vartta deals with wealth and non-wealth. It is by means of the treasury and the army obtained solely through vartta that the king can hold under his control both his and his enemy's party."

Chanakya too has included this science of wealth in the daily curriculum of the studies of a king. (I. 2).

He, has, moreover, given an unprecedented importance to wealth and its science, economics when he says, " out of the three-virtue, wealth, and enjoyment wealth is the most important. In fact virtue and enjoyment are rooted in wealth." (I. 3).

This same idea was expressed by Sukra in almost identical words: "Man is the slave of wealth, not wealth of anybody. So a man should ever studiously labor for wealth. It is through wealth alone that men get virtue, satisfaction and salvation."

- (2) Sukra, too, lays down an important injunction that princes ought to read four sciences—logic, ethics, vartta and politics. He defines vartta as dealing with interest, agriculture, commerce and cattlerearing. "A man well-read in this science", writes he, "can never have any fear of unemployment and hunger."
- (3) Kamandaka does not include interest in his definition of vartta, but in other items he expresses himself in the words of Sukracharya, as reproduced in the preceding para.
- (4) Bhagavata Purana (X. 24, 31) declares that vartta treats of four subjects: -- agriculture, commerce, cattle-rearing and interest.
- (5) A Sanskrit dictionary, Shabdartha-Chintamani by name, quotes a Shloka which means "agriculture, commerce, and cattle-rearing, these three means of livelihood are dealt with in vartta.
- (6) Then in the Devi-Purana (45th Chapter) we read that vartta is so called because it deals with cattle-rearing, ragriculture, commerce, and interest.
- (7) Even from Manu (IX, 326) we learn that vartta treats of cattle-rearing in particular. Vaishya having performed the marriage ceremony,

should ever be employed in cattle-rearing and the study of vartta".

All the preceding references from widely different books such as the Arthashastra, the Sukra-niti, Niti-sara of Kamandaka, the Laws of Manu, the Bhagavata and the Devi Puranas are almost identical in spirit as well as language regarding the sphere of vartta. In fact, the domain of vartta covered the same ground as the economic duties of Vaishyas. In all Hindu law books Vaishyas have been enjoined to live by trade, agriculture, and cattle-rearing, while lending money at interest has been added to the Vaishya's occupations by a few jurists.

The Scope and Object of Arthashastra

The domain of Arthashastra was undoubtedly different from that of vartta. Its real sphere will be evident from the significant words of Chanakya whose epoch-making work is the only Arthashastra that has come down to us.

"The subsistence of mankind is termed artha, the earth which contains mankind is also termed artha, that science which treats of the (economic and political) means of acquiring and maintaining the earth is the Arthashastra—the science of Polity and Economics".

The author then proceeds to show the significance and object of his own work in these words: "This Arthashastra, or Science of Polity, has been made as a compendium of all those Arthashastras which, as a guidance to kings in acquiring and maintaining the earth, have been written by ancient teachers. Thus this Sastra is composed as a guide to acquire and secure this and the other world. In the light of this Sastra one can not only set on foot righteous, economical, and aestheti-

cal acts and maintain them, but also put down unrighteous, uneconomical and displeasing acts", (pp. 519-520. Eng. Tran.)

The following outright condemnation of the science of Kautilya by Bana, the author of the Kadambari emphatically brings out the two-fold politico-economic aspects of Arthashastra:—

"Is there anything that is righteous for those for whom the science of Kautilya, merciless in its precepts, rich in cruelty is an authority; whose teachers are priests habitually hard-hearted with practice of witchcraft; to whom ministers, always inclined to deceive others, are councillors; whose desire is always for the goddess of wealth that has been cast away by thousands of kings; who are devoted to the application of destructive sciences; and to whom brothers, affectionate with natural, cordial love, are fit victims to be murdered?".

Then Sukracharva who is universally recognized as the father of all Indian statesmen and whose learned treatise known as the Shukra Niti-Sara is a veritable mine of very valuable and interesting information, defines Arthashastra as "the Science which deals with the functions of Government in consonance with the injunctions of the Vedas and lawbooks and teaches useful methods of the production and accumulation of wealth" (V. 8, 5, 6). The immortal Kalidasa, the Shakespeare of India, has briefly but felicitously remarked that writers of Arthashastra deal with the three-fold ideal of life-duty, wealth and happiness. While in contradiction to the above, the lexicographer Amara-simha of the most renowned Amarakosha has identified Arthashastra with Danda-niti, the science of Public Law.

With the exception of Amara-simha, all the other four writers, Sukra, Chanakya, Bana and Kalidasa, are

unanimous in describing the scope of Arthashastra. Hence it will be evident that Arthashastra is a very comprehensive science which deals with such important branches of knowledge as those of public law, politics and political economy; but a perusal of the Arthashastra of Kautilya shows that the latter science was dealt with so far as it was related to the state. Hence the Indian Arthashastra is not identical with modern economics. In fact, political economy seems to be treated as a branch of the art of government. foregoing conceptions of this science are almost identical with the one given by Adam Smith. "Political economy", he says, "proposes two distinct objects; first to provide a plentiful revenue or subsistence for the people, or more properly, to enable them to provide a plentiful revenue or subsistence for themselves: and secondly, to supply the state or commonwealth with a revenue sufficient for the public service. proposes to enrich both the people and the sovereign." The economic science was treated as a branch of politics by even those immortal writers Aristotle and Plato, and even so late as 1821, James Mill declared that "Political economy was to the state what domes-. tic economy was to the family" and treated it as a branch of statesmanship. Thus it appears to be certain that economics as an art was dealt with in Arthashastra so far as it was related to the state, while books on vartta taught the science and art of moneymaking to the general public by such means as cattlerearing, agriculture, commerce and usury.

Importance of Wealth

In the present and the following section we have endeavoured to show what supreme importance was assigned by these eminent Hindus to the so-called "paltry pelf" and its sordid science economics. First

we will reproduce in English a few passages on the importance of wealth. "Man accumulates wealth because it is the root of the world. I see no difference between the dead and poor. Do remember, O king, that men are not slaves of men but of wealth. is by reason of riches and poverty that men are high and low, hence you should leave no stone unturned in producing wealth. Poverty, beggary and slavery are the fruits of sins, they should be shunned by everybody. The poor are disregarded by all-even by their wives and children, and relatives. The fruits of all the actions of the poor dry up like rivers in the summer season. On account of this wretched poverty, some take refuge in forests or lonely mountains, some fall' into the clutches of their enemies, some sell themselves into slavery, some lose their senses, while others commit suicide. The poor are called miserable and sinful, while the wealthy are addressed by all as happy and righteous souls. High birth, good character, learning, purity, contentment, intelligence, fluency of tongue, and even a thousand other qualities do not shine in the absence of riches. Wealth alone is the foundation of all qualifications. Think of the man of high intelligence but without wealth: how his intellect wears out by the constant anxiety to procure the various articles of his food. Verily, a poor man is like a bird without wings, a tank without water, a serpent without fangs and like a tree that is dried up. Poverty is the cause of shame, shame hurls down a man from his lawful position. Then he is dishonored by all, this gives rise to anguish and mortification and consequently to the obscuring of his intelligence, this in its turn leads him to ruin. Thus hellish poverty is the root of all misery. In short, the very existence of a man is precarious without wealth, which is the true source of pleasure and heavenly bliss.

It is the fountain of religion and support of the universe. None can attain the heavenly bliss without wealth. The rich alone are living in this world, the poor are verily dead; nay, poverty is even worse than death."

Now the paramount importance of vartta and arthashastra will be well indicated by a few evidences culled from authentic sources. Kautilya begins his arthashastra with a discussion on the relative importance of the four principal sciences, and shows that vartta and arthashastra are the sciences par excellence. His words are: "There are four primary sciences—logic, the three-fold lore of the Vedas, vartta and politics".

The school of Manu recognises three sciences: Vedic lore, vartta and politics.

The system of Brihaspati counts only two sciences: vartta and politics, because, in the words of Kamandaka: "these alone can help people in the acquisition of wealth."

But the great preceptor Sukra recognizes one and only one science in his work and that is *Danda-niti* 'politics', which is the beginning and the end of all sciences.

Next the very interesting passage concerning the appreciation of Chanakya and the importance of arthashastra as well as vartta in the first two chapters of the Nitishastra of sage Kamandaka deserves the attention of the readers:—

"Salutation unto the most learned Vishnu Gupta, who raised the ambrosia of political science out of the vast ocean of the arthashastra. As this science is very much liked by kings, I shall make a brief but clear abridgement of the treatise of that learned scholar who was a master of all branches of knowledge. Whatever I shall say will be in perfect harmony with the views of those well-versed in the science of politics (rajvidyavidam). Metaphysics, Vedas and varita are indeed the most excellent of all knowledge."

Saint Narada laid down the following injunction:—
"Let the king follow the rules and tenets of economics—vartta and Politics—without being blinded by self-conceit." (Narada-parishishta, 61).

But the Vana-Parvan (150) of the Mahabharata outdoes the above statements when it says that everything in the world is upheld by vartta." When such supreme importance has been attached to vartta by so many different schools of thought, would it not be preposterous to think that the ancient Indians did not devote themselves to the study of this science? I believe that it is clear as noon-day that tremendous efforts must have been made to develop this branch of knowledge.

Ethics and Economics

Narada in his law books speaking of the relative importance of ethics and economics lays down in I. 29 that: "Where the rules of sacred science and arthashastra are at variance, the king ought to discard the dictates of economics and follow the precepts of ethics." The same idea has been expressed in many other books of law and polity, for instance, Sukraniti, IV. 5, 44, 274; Yajnavalkya-Smriti II. 211; Agni-Purana, 253, Chap. 50.

It is plain from these words that it was widely held that morality and ethical principles ought not to be sacrificed on the altar of economic and political considerations by Government. In other words moral and ethical forces ought to loom large in the politics of the world and economic forces should be so transformed as to harmonize with the established ethical principles. But alas! in these days of tooth and claw competition ethics has to hide itself in nooks and corners from the merciless attacks of economists of the selfish and egoistic school.

In the presence of such evidence it must be universally admitted (i) that great economic and political thinkers were born in those hoary ages which have not yet been penetrated by the sharp historical research of to-day; (ii) that ancient Hindus used to devote a great deal of their time to the study and development of economics; and (iii) that princes and subjects alike must have competed sedulously cultivating this great science. is. however, a pity that economic works have not escaped the merciless ravages of time, and therefore only a scanty knowledge of economic subjects lies scattered here and there in various Sanskrit books. reader has been convinced of the existence of vast economic literature in ancient India, the object of these pages has been fulfilled, and we trust that a great effort may be made to build up Hindu economics from scattered passages which lie embedded in the thick crust of the voluminous Sanskrit literature.

Theory of Prices

With this introduction we will immediately address ourselves to the details of economic theories developed by Sukra, with occasional reference to Kautilya's arthashastra. It is indeed a pity that the details of the development of Indian economic thought should have been lost for ever, that no systematic treatise should have been handed down to us, and that we should have been obliged to build superstructures from incidental allusions scattered in a few important works.

Yet it may be said without any fear of contradiction that Sukra has anticipated many modern economists in several things of fundamental importance. While a generation before economists were sharply divided in their opinions regarding the real

cause or causes of the phenomenon of prices, and acrimonious controversies occurred on the various causes of value, such as utility, scarcity, difficulty of acquisition, cost of production, cost of reproduction, marginal utility, we find that it is only recently that many scholars have come to unanimously recognize the first five as the principal conditions of the origin of value, and to acknowledge the last, the marginal or liminal utility, as the one single cause capable of explaining the complex phenomenon of values.

Utility—Let us first of all take up the theory of prices as it has been worked out by Sukra, who was probably the first in the world to lay down a few fundamental conceptions concerning value. He maintains that utility is everywhere one of the essential conditions of value or, as the late Professor Jevons expressed so forcibly, that "value depends entirely on utility." His words are: "There is no price for things which are incapable of ministering to human well-being, and whose excellence has not been recognized in ordinary life." When we know that anything which is capable of satisfying a human want is a good, or possesses utility, one cannot refrain from remarking that Sukra has thoroughly understood this root-cause of all values.

Intrinsic Value—But he has stated a second essential condition which in terms of modern political economy is known by the name of intrinsic value—"certain properties in an object which make it capable of satisfying a human want". According to the preceptor only goods which are endowed with some such qualities and can be used for gratifying human desires possess value.

However, he was at the same time cautious enough

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to point out that value was not an inherent property of any object whatsoever, but it could only arise when there was a demand for the good by human beings. He tells us that "All metals, gems, cattle, food articles, clothes, etc., up to grasses, are included in the category of wealth, but even gold, etc., can have no value. They acquire value only when they are employed for any human purpose."

Scarcity—The element of scarcity has no less clearly been recognized by Sukra. "The price of the most lovely ones, "writes he, "is to be determined by fancy. The price of very fine things is not to be determined by weight. Those which are rare in this world are priced as Gems." (IV. 2. 83).

Now it should be borne in mind that having once emphasized the fundamental principle of no value without utility, Sukra has stated that rare things—difficult of attainment and scarce relatively to human wants—have very high prices. He has also adverted to the most important point of the fancy prices.

The Sanskrit words used by Sukra are:-

Atyanta-ramapriyanam, of the most lovely.

Durla Chanam, of things difficult to acquire.

Atigunashalinam, of goods possessing a very great excellence.

Kamatah, according to desire of fancy.

Happily Sukra has himself expressly stated the above mentioned root-ideas in another passage thus: "Prices of goods are high or low—

- (a) according as they are attainable with or without ease,
 - (b) according as they do or do not possess use value—power to satisfy human wants,
 - (c) according to the value set upon them by human beings—human fancies." (II. 357)

It seems certain now that Sukra did recognize the combined influence of the four chief elements of (1) scarcity, (2) cost of production, (3) utility, and, lastly (4) the moral and intellectual or subjective elements of demand and supply in the determination of values.

Cost of Production—Sukra has in another passage separately pointed out that value is fundamentally determined by the cost of production, for says he—"Whatever cost a commodity has incurred in being made or brought into the employable form, that cost is its value" (II. 856).

In the necessarily brief treatment of the subject we have not been informed of the actual influence of this item in controlling prices along with the other factors mentioned by the author. No light has been thrown except the bare mention of the cost of production governing value, on the relations of cost, demand and value or on short-period and long-period prices.

Different Prices of an Article—Sukra also laid stress on the point that prices of the same good—say, wheat—vary in the same market at the same time in proportion to the quality of the good: "prices are high, middling, or low when a thing is of a high, middling or low quality." Thus the principle that prices are graded according to the quality of a thing has been clearly enunciated.

Fluctuations in Market Prices—The subjoined line states the causes which bring about fluctuations in market prices:—

"One should know that prices are fixed according to time and place." (IV. 2. 106).

Herein all the congeries of causes influencing values from the sides of demand and supply, all the

causes of market fluctuations, have been naively grouped together in the words of time and place. Who does not now know that prices vary with a change of circumstances, i.e., with time and place, that different countries and different parts of the same country have different prices at the same time and that prices also change in the same country with the lapse of time. With all this commonplace knowledge Sukra brings out the essential idea that market prices oscillate and can be fixed only by reference to the circumstances altered by time and place.

Further on he emphasizes and clearly expresses this idea by writing that "Scholars know that the prices of all things are ever settled by circumstances (Loka)" (IV. 2. 107).

Relation of Supply and Demand to Prices—The four fundamental laws expressive of the relation of the supply, demand and value have been implied, though not expressly stated, in the following aphorism of Kautilya: "One should know the occasions of increasing and decreasing his supply and demand, as well as of sale and purchase."

We are of opinion that such laws as supply increases with a rise and decreases with a fall of prices, while demand falls off with a rise and goes up with a fall of prices, and their contrary laws, have evidently been referred to in the above aphorism.

Items of Commercial Cost—Kautilya has twice mentioned a few items of expenditure incurred by the supplier of a commodity and often paid for by the purchaser. Their enumeration cannot but be interesting to the modern reader:—

"Having ascertained the value of local produce as compared with that of foreign produce that can be

obtained in barter, the superintendent will find out (by calculation) whether there is any margin left for profit after meeting the payments (to the foreign king) such as the toll (sulka), road-cess (vartani), conveyance-cess (ativanika), tax payable at military stations (gulmadeya), ferry-charges (taradeya), subsistence to the merchant and his followers (bhakta), and the portion of merchandise payable to the foreign king (bhaga).

He shall also gather information as to conveyance-charges (yanabhaga), subsistence on the way (pathyadana), value of foreign merchandise that can be obtained in barter for local merchandise, occasions of pilgrimages (yatrakala), means that can be employed to ward off dangers (of the journey), and the history of commercial towns (panyapattanacharitra).

Having gathered information as to the transaction in commercial towns along the banks of rivers, he shall transport his merchandise to profitable markets and avoid unprofitable ones." In another passage the items governing market prices have been mentioned as:—

- (1) Expenses incurred in manufacturing articles.
- (2) The quantity manufactured.
- (3) The amount of tolls and taxes.
- (4) Interest on the outlay.
- (5) Charges of transportation.
- (6) Other kinds of accessory expenditure.
- (7) Changes due to time.
- (8) Changes due to place 1.

Monopoly Prices—Kautilya has advised kings to secure the gains of monopoly, and has incidentally thrown light on the theory of monopoly prices. "If any particular commodity be in abundance," we read, "its whole stock should be controlled by the Commissioner of commerce who should fix a price for is

¹ See p. 261, Eng. Trans.

sale. When that rate becomes popular, another rate should be declared.

The merchandise of the king which is of local manufacture should be controlled by way of monopoly; but imported merchandise should be allowed to be distributed in several markets for sale. Both kinds of goods should be favorably sold to the people. The king shall avoid such large profits as will harm the people. There should be no restriction as to the time of sale of those commodities for which there is a constant and wide demand; nor they be subject to the evil of monopoly."

The following conclusions emerge from the fore-going:—

- (1) A monopolist has a complete control of the supply and prices of monopolized commodities.
- (2) The state should not allow him to enjoy excessive profits.
- (3) Articles of general demand should not be monopolized.

Forms of Wages—Having studied a few points relating to prices, let us proceed to state the views of Sukra on wages. Sukra has taken the form in which rewards of labor are received as the basis of his classification of wages. The subjoined passages give the names and definitions of the various forms of wages in the words of the preceptor himself.

"Remuneration can be paid according to time or work, or according to both. It is to be paid therefore as arranged, i.e., according to contract.

"This weight is to be carried by you thither, and I shall give you so much for your work". Remuneration calculated on this system is according to work.

"Every year, month or day I shall pay you so much," Remuneration calculated on this idea is according to time.

"So much work has been done by you in so much time, I shall pay you therefore so much". Remuneration thus calculated is according to both time and work. (II. 392-5). The same classification has also been mentioned by Kautilya (pp. 140-1, English Translation of Arthashastra.)

Wages and Standard of Life—Another classification follows on the basis of subsistence procured by the laborers with the wages received. It is highly important and suggestive for pointing out the limits of maximum and minimum wages. The four-fold division is described below in the words of the author himself:—

"Normal wage is said to be that which is just sufficient to supply necessities to all those persons who must be maintained by the earner.

The maximum wage is that by which all the necessities of life are liberally supplied to all the dependents of the worker. An ordinary wage can buy food and clothing alone for the family of the laborer. But a minimum or low wage is known to be that by which the laborer alone can be maintained." (II. 396-397).

Evil Consequences of Low Wages—The system of low wages has been forcibly deprecated by Sukra in words like these:—

"The servants who get low wages—wages insufficient for the maintenance of their families—are voluntarily made enemies by their employers. If employed by a king, these servants become ready tools in the hands of the king's enemies, and are at the same time seekers of opportunity and plunderers of the people and the royal treasure. Hence none ought to be ever given a minimum wage" (II. 400).

Normal Wages—Sukra atttaches special importance to normal wages when he once more lays down in couplet 399 of Chapter IV that "Wages are to be so fixed that a worker may maintain all his special dependents".

The complete lists of such dependents "who are to be religiously maintained to the best of one's ability even under adverse circumstances" includes some twenty persons. They are counted by Sukra (III. 121-3 or Daksha 2. 35-41) as below:—

"The chaste wife, mother, step-mother, daughter, father, daughter-in-law, widowed daughter, or sister who has no offspring, aunt, brother's wife, sister of father or mother, grandfather, preceptor who has no son, father-in-law, uncles, grandson who is a minor or an orphan, brother, sister's son." (III. 121-3).

This fact deserves more than passing notice as it throws light upon the rate of normal wages which must have been sufficiently high to supply not only the bare necessities of life but a few articles of comfort to the worker, his family and to so many of his dependents.

Efficiency Wages—Sukra has also propounded the theory that wages should be given according to the work done by laborers. His words are: "According to the efficiency of the workers there should be the rates of wages fixed by the king carefully for his own welfare." (II. 398.) Thus the doctrine that wages are to vary according to efficiency has been clearly enunciated.

From the foregoing remarks we arrive at the conclusion that the necessary expenses as fixed by the prevalent standard of life were looked upon by Sukra as the principal cause of limiting wages. In other words, the ordinary wage was to be high enough to procure all those necessary things

which were essential for keeping up the ordinary standard of life.

Sukra is very careful to state that the ordinary wage is to serve as the lowest minimum for Sudras alone, out of the four castes, that they might have no license to lead sinful lives, or for the dullest and most unskilled laborer. Hence the ordinary wage was looked upon as the lowest base for efficiency wages. Starting from this base we see that the ordinary laborer is to get the normal wage and skilled laborer the maximum rate of wages. His own words are: "The wages of Sudras are to be ordinary," i.e., just enough for food and raiment. (Chapter II. 101.) Laborers are of three kinds: "Dull, ordinary and expert. Their wages have to be ordinary, normal and maximum respectively." (Chapter II. 403).

To sum up this enquiry, we need not remark that the ideas of Sukra are exceptionally brilliant. When, on the one hand, we realize that "the history of economic science is strewn with the wrecks of theories of value," and on the other, that the fund of economic knowledge in the times of Sukra must have been exceedingly slight, it cannot but enhance our admiration for the "preceptor of the Daityas", who so very suggestively, though imperfectly, elaborated the complex theory of prices. In short, even in pure economic theory, Sukra ought long "remembered as one of those great Ъe pioneers who, even if they are not able themselves reach the goal, nevertheless blaze out a new promising path in the wilderness of human thought and human progress."

THE INDIAN FUEL PROBLEM WITH SPECIAL

REFERENCE TO SOUTH INDIA

RAO BAHADUR K. V. RANGASWAMI AIYANGAR, M. A. MAHARAJA'S COLLEGE, TRIVANDRUM

I propose to consider the question of the adequacy of the fuel resources of India, with particular reference to wood-fuel, in many respects our most The question has important source of fuel energy. long attracted me, and I have often regretted that it has not received the widespread and systematic consideration which it deserves from those interested in India's industrial progress and in the upkeep of progressive standards of living throughout the ranks of Indian Society. Officers of the Provincial Forest Departments and of some Native States have, now and then, taken stock of their fuel resources, particularly in relation to the supply of large cities, or have treated the question as mainly one of revenue, affecting areas covered by jungle-wood, which could only be worked profitably as fuel reserves. progress that has been made in the preparation working plans for the systematic exploitation forests in British India and in the Native States has led to a steady increase in the amount of timber and fuel extracted, which had for instance risen to

an average of 280 million cubic feet per year during the quinquennium ending with 1914-15, as compared to an average of 288 million cubic feet per year, for the period 1900-1 to 1904-5. This has led to the consideration of fire-wood and charcoal—the inevitable joint-products in timber extraction, as articles by whose sale the margin of profitable timber exploitation might be extended. As contrasted with that of wood-fuel supply, the supply of timber has attracted more attention from Forest Officers though the Industrial Commission is apparently not |quite satisfied with the manner in which even this has been done, in India's largest Forest asset—viz., the forests of Burma. ("Report" p. 31.)

The problem of timber supply has in recent years become grave in Europe and America and it is just possible that this is what has stimulated the attention of our Forest Departments. In January last Mr. R. S. Pearson read a paper before the Indian Science Congress on India's Timber Supplies. If the question of wood-fuel had been as urgent in the countries of the West as it is in India—this would be the case if they had no access to other fuels of a more compact and more efficient character such as coal, coke, and oil—the fire-wood problem would have already bulked large in the Forest and Economic literature of India as well as of Europe.

The importance of fuel supplies in Indian Economy should not need any special demonstration. Industrial countries regard the question of fuel supply as one of power. And as civilisation, in Baron Liebig's happy phrase, means economy of power, fuel considered as a source of power has received widespread and competent attention in the West. It is noteworthy that even the luminous remarks on the fuel resources of India, which are to be found in the recent Report

of the Industrial Commission, (Chapter VI), are only with reference to fuel as a source of power for industrial purposes. Undoubtedly, in the future, with the progress in India's industrial development, this aspect of the fuel question will clamour for increased attention. However, in India, at present and in the future as well, fuel will not only be synonymous with power but must imply, to the ordinary Indian life itself.

Throughout India, the biggest single item in the demand for fuel, mainly wood fuel, is for domestic consumption. And it must continue so. For in considering such consumption, we have to bear in mind an important circumstance, viz., that the bulk of the people in India are very slow to move and will not readily, or possibly cannot, adapt themselves to use more efficient substitutes for wood-fuel. The use of coal and coke for domestic purposes is at present confined to the neighborhood of the colliery arease.g., West Bengal and Calcutta, and the consumption of charcoal, mineral oil and alcohol is restricted to a very small portion of the urban population. the forest areas our only sources of firewood supplies, their unequal distribution, coupled with their location mainly in hilly tracts, which are naturally sparsely populated and present great difficulties to transport, would have already brought about acute suffering all over the country on account of the prohibitively high prices at which alone firewood could have then been This would be clear if we remember that the main item in the price of all fuel (including coal) is cost of carriage. (See the appended note fuel working charges in Madras). The bulkiness of firewood as well as the absence of cheap waterways 1

¹ For instance, Casuarina fuel would have been much higher in price than it is now in Madras, but for the connection of the city with the Casuarina plantations in Nellore district by the Buckingham Canal.

connecting the forests with the markets and the paucity of efficient transport arrangements within the forests, tend to extend the lead and enhance the cost of carriage. Again, the facilities for importing fuel which India possesses are vastly inferior to those of the West. Hence, it would follow that when we do encounter a serious shortage in our fuel supplies. the distress in the country must prove acute, the suffering widespread and intense and not at all easy to remedy.

This is a serious contingency, which we should do well to consider even from now on. The gradual industrialisation of the country must lead to the starting of new industries as well as the expansion of old ones, which are now partially handicapped by lack of fuel, e.g., glass-making, cement and pottery works, soap-boiling etc. 2 Again, any improvement in India's economic position will very probably followed by a general rise in the standard of living. which should lead to a larger consumption of fuel for domestic purposes, and to an increase in the demand for housing accommodation, both as regards the quality and the quantity of it. The latter would mean a demand for more fuel, for brick and lime cement factories. And if it could and kilns shown that our fuel resources have not shown themselves capable of advancing pari passu with the increased demand therefor, our outlook must be deemed sufficiently serious—and almost depressing.

For the purposes of our enquiry it would be necessary to form an estimate of the probable volume of consumption of fuel of all kinds in the country.

i We have few forest tramways in India. Where they exist, they are maintained for the transport of timber, and not firewood. Already in different parts of the country the high price of firewood has been causing acute distress. There are places in which firewood costs Rs. 40 a ton.

In the near future, it is not improbable that the mileage of the Indian railways will be considerably increased. This would imply more demand for fuel.

both now and in the future, and of the specialised uses of particular fuels. The most convenient way of gaining some idea of the nature and the probable extent of the demand will be to classify the main heads of such demand. So far as India is concerned these may be roughly put down as under:—

- 1. Domestic Consumption.
- 2. Small industries.
- 3. Brick-kilns—lime-kilns and pottery works.
- 4. Mines including use and wastage near the collieries.
- 5. Metallurgical industries and Engineering Workshops.
- 6. Factories (Cotton, Jute etc.)
- 7. Gas installations.
- 8. Automobiles.
- 9. Steamers (bunkers), coasting and inland.
- -10. Railways (all uses).

Taking for example coal, it was found in 1916, when a careful estimate of its consumption was made, that out of the total Indian out-put of about 8 million tons, the amount consumed by the Railways accounted for 38.6 per cent, the coasting and inland steamers for 16.7 per cent and 3.6 per cent, the factories and the metal industries for 11.1 per cent and 5.1 per cent each, the small industries and domestic uses for 12.6 per cent, the wastage near the collieries for 12.6 per cent, and other miscellaneous uses for the balance, viz., 4.7 per cent. It was also noted that the proportion expended on domestic uses was quite insignificant, as we should have anticipated, since the domestic use of coal and coke is practically restricted to the vicinity of the West Bengal coal field and the city of Calcutta and its suburbs.

If the volume of the aggregate consumption be taken as an index of the relative importance of the

different uses, "domestic consumption" is easily first. The demand under this head will naturally vary with the numerical strength of the population, the economic strength and the standards of living of the several classes, (as dictating the different wants that fuel has to satisfy), the presence of inducements and facilities for practising fuel-economy, and the geographical distribution of the population according to climate.

Any estimate of the total domestic consumption of fuel for all India, at present, must necessarily be imperfect, as no scientific survey of such consumption has been made, taking account of all the features mentioned above, even for small areas. Nevertheless, such estimates are being constantly made, roughly, it is true, by Forest Officers, in order to gauge the local demand for fuel.

I venture to submit that any esimate framed on fairly careful observations made for different sections of the people, in different parts of the Madras Presidency, may tentatively be accepted as the standard, in view of the varied physical features, the wide range of climates, the large variety of crops, the absence of any coal-fields or oil-areas (as in West Bengal and in Burma respectively), the moderate area of forests and the comparatively low standard of living of the population of the province, which make it fairly representative of India.

I have carefully examined the expenditure of fuel in my own house as well as in several other families, and have also collected data from a large number of friends, who had made similar enquiries, at my instance, for different classes of the population in different parts of the Presidency, and I give below as samples the results of *some* of these observations¹:—

¹ As a standard of comparison it is worth remembering that in 1911, according to the figures given by Professor H. S. Jevons ("The British Coal Trade", pp. 746-7) the average daily coal consumption per head in England was over 28 be.

- 1. For several so-called "middle-class" families which use other auxiliary fuel, I found that the expenditure of air-dried firewood alone ranged from 5 lbs. to 10 lbs. a person, per diem, in areas where there was no special difficulty in obtaining firewood. Such a family would cook twice a day, and also use up some fuel in the preparation of a light tiffin, or occasional warm water for baths. My results agree with those obtained by an experienced Forest Officer in Travancore (Mr. K. S. Narayana Aiyangar, Assistant Conservator) who made an independent enquiry at my instance.
- 2. A large Government prison, with about 600 inmates, for whom food is cooked, only once a day, in special fuel saving ovens, buys daily a ton of firewood. This would give the per capita consumption as at least 3½ lbs.
- 8. A small Hostel, for 40 Brahman students, at Madras, which provides two cooked meals daily, and warm water for baths twice in the week, uses up 3 tons of firewood a month. This gives a consumption of over 6 lbs a day, for an individual. The amount of auxiliary fuel used is not known.
- 4. My friend, Mr. K. A. Nilakantan, M. A., 2 reports a few families, at Madras, living very economically, which conserve whatever auxiliary fuel they are able to obtain and cook only once a day, and thereby contrive to get on with as little as 2½ to 1½ lbs of firewood per day, per individual. The figures furnished by a careful family in Tanjore District indicate a consumption of about 3½ lbs of firewood excluding auxiliary fuel, the available quantity of which varies frequently.

¹ Air-dried wood usually contains not less than twenty per cent of water, while freshly felled wood contains as much as fifty to sixty per cent of water. See Sexton's Metallurgy, pp. 90-21.

2 Now Professor of History in the Hindu University College, Benares.

- 5. In South Travancore, in a Non-Brahmana middleclass family of three, a ton of air-dried firewood lasts three months, the cooking being done three times a day—the after-noon cooking being of light tiffin. This gives an average daily consumption of over 8 lbs. per person.
- 6. The city of Madras depends for its fuel, mainly on imports of Casuarina and jungle fuel through the Buckingham Canal, the South Indian Railway and the M. S. M. Railway. The figures for the annual Casuarina imports by this canal since 1899-1900. indicate that per capita consumption is about a pound of Casuarina fuel at Madras. We have, however, still to reckon along with this the fuel brought over the railways and over ordinary roads, the decided cow-dung, of which immense quantities are sold about Rs. 16 to Rs. 22 a ton in Madras through the year, and such small supplies as are available from trees within the city itself, the sweepings of carpenter's shops etc., before we can arrive at a figure which would be approximately correct.

In estimating the domestic consumption of a large provincial area like Madras, I think it would be unwise to put down the consumption per head, per day, at less than 2½ to 3 lbs. The poor are, in fact, more wasteful of fuel than the rich on account of the primitive character of their cooking-ovens and utensils, through which much heat is wasted. And the breaking up of firewood and its dryage, which are undergone, before their consumption (particularly by the poor) begins, often mean a loss

¹ Madras receives some Casuarina fuel through the railways. Almost all the considerable quantity of jungle fuel which Madras obtains from the mofusail somes by rail.

fussil comes by rail.

2 To the rich man economy of fuel is of small importance. But he could afford to buy fuel saving apparatus, which would necessarily imply more initial outlay and the demand for more space. The poor man may be careful, but his arrangements for cooking—an open fire and shallow pans, often of earth, are most inefficient and extravagant.

of nearly 35 per cent in the fuel. And if an All-India average is sought, it should be put even higher than the upper of the two limits I have indicated, in view of (1) the larger demands of the colder regions, and (2) to balance the extravagant uses of fuel in the vicinity of abundant reserves, for as is well known, cheapness of fuel means a larger consumption of it, and often greater wastefulness in its use too. 1

Applying this low rating to British India and the Madras Presidency (excluding Native States), the total daily demand of fuel for domestic purposes may be put down as roughly equivalent to 720 million lbs. of wood-fuel, in the year 1907-8 (a typical year) when the population was about 239 millions. implies about 120 million tons of firewood or equivalent, per year, for the entire population of British India. The total out-turn of fuel from Government Forests in 1907-8 was (Pearson's Commercial Guide to the Forest Products of India, p.7) only 1693 million cubic feet, which at the usual forest conversion rate for fuel viz., 80 cubic feet per ton, is only a little over 2 million tons. That is to say the fuel worked from Government Forests will meet only less than 2 per cent of the demand, even if all of it were for only domestic consumption! Even if the average rate of consumption per head were put down as low as a pound per day, the proportion of the total demand for fuel which the Forests met could not have exceeded 5 per cent that year. And the year is fairly typical.

Let us consider the case of the Presidency of Madras. In 1911, its population was returned as 414 lakhs. The fuel worked from the Forest areas

1 I have noticed that the women of the Malabar Coast, which is well.

¹ I have noticed that the women of the Malabar Coast, which is well-wooded, are extravagant in the use of fuel as compared with the women of the less-wooded parts of South India.

amounted to 221 lakhs of cubic feet, i.e., about 2½ lakhs of tons. At even a pound per day rate, the total demand for fuel in the province, during the year, would have come to over 70 lakhs of tons. That is, only obout 4 per cent of the total demand at this very low rate, could have been met by our Forests, during that year, even if all the forest fuel went to satisfy domestic uses only.

A perusal of the population tables since 1891 will show that for the mere annual increment in numbers the equivalent fuel demand, even at the very low rate of a pound of fire-wood per head per day, will be about 200,000 tons, while on our assumed rate it would be 700,000 tons. We have still to consider the increased demand for fuel on account of the improvement in the standard of living of the people. The average annual out-turn of timber and fuel from British Indian Forests for the quiniquennuim ending with 1914-15 was roughly 280 million cubic feet, of which the fuel supply would have been about 70 per cent. i.e., 196 million cubic feet. For the corresponding period a decade earlier, the average out-turn of fuel, assuming the same proportion between timber and fuel, was 166 million cubic feet a year. The difference of 30 million cubic feet represents the improvement of the decade. It is extremely doubtful whether such a progressive increase in the fuel capacity of our Forests can be safely counted upon for ever. But even assuming that this is feasible. the annual increment of fuel would come up only to 3 million cubic feet or \$ lakh tons. That is to say, the proportion which the possible additional supplies of firewood will bear to the likely additional demand therefor will be as 3 to 16, even on so low a per capita fuel consumption as a pound per day.

The village potter consumes a certain quantity of

fuel, but he invariably uses up all the rubbish he could gather, since otherwise the prices of his wares would become prohibitive. Refined pottery and glass works will use wood-fuel or coal, but the demand under this head is more potential than present.

Brick and lime kilns, however, entail a steady demand for firewood and charcoal. At present the main use of charcoal, is for making the quick lime required for building construction, the balance alone being available for other uses, such as those of goldsmiths and workers in metals, washermen, occasional domestic cooking as in this city, etc. Brick kilns use firewood almost invariably, the rate being a pound of fuel for a brick of standard size. The demand for buildings-both public and private-is progressive, with the increase in the population and improvement in the economic condition of the people. Further, a demand for bricks is generally also a demand for lime, and unless the latter can be provided from the available charcoal it will have to be made from additional supplies of charcoal which would have otherwise remained as firewood. Under the existing crude processes of charcoal burning, the out-turn of charcoal does not amount to more than 11 per cent of the firewood used up in the process. This aspect alone might necessitate, in the not distant future, either the cheaper preparation of charcoal, as by the destructive distillation of wood, or the manufacture of lime without the use of charcoal.

A rough idea of the demand for additional buildings—urban and rural—may be gained from considering the number of new families and the amount of house accommodation which the natural growth of the population will necessitate. Our census figures show that a family or a house may be taken as consisting of five persons. This would mean 240,000

new houses every year. Of the new buildings. 11 per cent (if the present proportions hold) will be in urban and 89 in rural areas. An average house in a town will require 140,000 bricks, i.e., 70 tons of fuel. Rural demand for housing which is eight times as great may be put roughly at twice the urban demand, so far as bricks are concerned. The total annual extra demand for firewood on account of brickkilns, for private buildings alone, will thus come up to fifty-six lakhs of tons. There still remain new public buildings to be considered, and the improvements to existing buildings consequent on rise in the standards of comfort. On the other hand. building stone has to be regarded as in part a setoff to the demand for bricks. Nevertheless, all things considered, the annual demand for fuel under this head cannot well be below five million tons.

The only other considerable users of wood-fuel are some of the factories and workshops, and when there is a coal shortage, the railways. In our railways the use of wood-fuel has practically vanished. The war brought about a revival of the use of firewood for running and lighting purposes, and the South Indian Railway, which has always used some wood-fuel, expended 109,238 tons of it in 1917-1918, according to figures obtained from its Locomotive and Carriage Superintendent. In view of the lower calorific power of firewood as compared to ordinary coal (which stand to each other as 1 to 2½ roughly) and the ash it forms, the continued use of firewood in any extensive quantities need not be looked for on our railways. especially if coal is available, or the use of oil supersedes the use of solid fuel. The introduction, as suggested by the Industrial Commission, on a large scale in the future, of producer-gas-engines, in which the gas is generated by charcoal, wood, coke or coal,

might lead to some additional demand for wood-fuel, but taking the country as a whole the strain on the available supplies on this account could be ignored for several years to come.

We have thus far considered the domestic demand (in a large sense) especially that part of it which is readily met by a non-specialised fuel like firewood. The demand for other kinds of fuel is extending rapidly, particularly in industrial fields, from which firewood is being ousted. This is only natural, as weight for weight, coal is 21 times more efficient as a fuel than firewood, and liquid fuel is 1½ times more efficient than coal. (H. S. Jevons, "The British Coal Trade" p. 700). Coal and liquid fuel are even coming into competition with firewood in domestic consumption, particularly in urban areas, where special ovens or stoves for their consumption are available, and their use is also dictated by the conditions of living, or the rules of tenancy as in the City Improvement Trust areas in Bomboy. The bulk of the Indian population is, however, rural and slow to change its habits. It is very doubtful if, even after the lapse of another 50 years, such progress would have been made in the domestic uses of these substitutes, as to enable them to be regarded as of appreciable importance in meeting the firewood shortage.

It is, however, of great importance to consider them in regard to the industrial demands of the future. The production and consumption of coal and petroleum are indicated in the three graphs I am exhibiting. These will show how large has been the increase in the consumption of both. As regards coal, it is noteworthy that railway consumption accounts only for between 28 and 34 per cent of the output, and that practically all the coal available is absorbed by the growing demand of the country in industry

and transport. If our coal deposits do not fail us, and India's coal out-turn and railway rates could be adjusted so as to minimise the cost of transport of coal by land, it is permissible to presume that the normal increase in demand will be met therefrom. As regards the future of petroleum, it would be rash to hazard any surmise. Liquid fuel has great and obvious advantage and it would be only natural to predicate a larger utilization of it. But the entire production of India is barely 2 per cent of the world's supply, and the bulk of the oil-sources is controlled by those great monopolistic organizations of the West, which have virtually that power to dictate the prices should be sold all over the world. which oil our oil-wells are not inexhaustible, and it is doubtful if new oil-areas within India can be discovered, as a set-off to those which are exhausted.1 And the experience of the recent war should make any country chary of trusting so vital a thing as power-generation to the chances of external (and possibly hostile) control. This aspect of the matter should not be lost sight of in any scheme of national against believing fuel-economy, and must warn us ourselves capable of becoming substantially less dependent on our firewood resources.

The manufacture of charcoal in our forests is now carried out in a primitive fashion, and as railway freights are calculated on bulk as well as on weight, the increasing cost at which charcoal could—with the existing methods of production—be supplied in towns should be viewed as a national question, especially if it would mean the needless destruction of firewood. In

I See the Industrial Commission's Report, paragraphs 48 and 96. In 1904 the output of petroleum in India was 118½ million gallons, and the yearly output steadily rose to 277 million gallons in 1913. In 1914 the production fell to 259 million gallons, and though the output has since recovered it has only been by very deep boings that the recovery has been possible. See Becords of the Geol. Survey of India, vol. 45, pp. 172-3, vol. 47, pp. 161 and vol. 48, p. 51.

December 1910 at the Industrial Conference at Allahabad, Mr. Mahadev Rajaram Bodas of this city read a paper on "Wood Distillation" in which he argued that it was possible, by adopting improved processes of manufacture, to increase the out-turn of charcoal from 244 lbs (the present quantity) to 653 lbs per ton of wood. Mr. Bodas contended that the valuable by-products of the distillation would be pure profit,1 as the extra charcoal produced would alone be sufficient to balance the working charges and interest on outlay. Urban life will lead to larger consumption of charcoal (in patent stoves and cookers like "Icmic" and "Anna-purna"), and it would be a useful idea—in view of the prejudice against the use of animal charcoal in sugar refining-to substitute vegetable charcoal for it, as Mr. Bodas urges, it is possible. It has, however, to be remembered that the charcoal is now produced from twigs and branches which will not pay to cart out of the forests, and that accordingly, the wood distillation will not prove as remunerative as Mr. Bodas assumes, unless plant is located in the heart of the forests, where charcoal burning now takes place.2 A possible point for consideration is furnished by a remark of Professor Humblot Sexton ("Metallurgy," p. 29) that charcoal prepared in retorts is usually much inferior in quality to that prepared in heaps.

The problem of the adequacy of our future fuel supplies, now substantially resolves itself into only one question, namely, whether we shall be able to meet. now and hereafter, the demand for firewood as easily and as cheaply as we have hitherto been

producing plants within the reserves.

¹ Mr. Bodas reckons on the simultaneous production of 210 lbs of tar and 560 lbs of crude acetic acid during the dry distillation of a ton of wood, for producing charcoal. The acetic acid should prove particularly valuable in meeting the demand therefor from rubber estates.

2 The location of rubber estates in the vicinity of the forests by creating a good demand for crude acetic acid should make the location of such charcoal appropriate plants within the wearrest.

This brings us to the consideration of the fuel demand for those uses which firewood now subserves, as compared with the sources from which this is or could hereafter be met.

As we saw, on a-pound-a-day-per-head calculation, the total annual demand for wood-fuel in British India alone would now imply a demand for about 250 million lbs of dry firewood, per day, or over 44 million tons of firewood a year. This is, however, too low an estimate, and it would be safer to put the annual consumption at about three times this On the latter assumption our forests now supply less than 2 per cent of the wood-fuel we require. Where does the balance come from? Even on the lowest ratio of consumption, the forest supplies will not meet more than 6 per cent of the demand.

The answer to this question requires a passing glance at the chief substitutes for wood-fuel in domestic use. It is well known that over the greater part of India, the droppings of cattle are collected, dried, and used as fuel. The calorific value of such fuel is lower (being only one-half to two-third, i.e., 1600 to 2000 calories) than that of firewood, nor can it be used by itself. Still, as it produces a low heat and is the only available fuel in many irrigated or treeless areas, it is extensively used in urban as in rural tracts.1 The price of dried cattle excrement in the neighborhood of cities (e.g., Madras, Madura) is greater than its price as manure 2, (as it tends to approximate to the price of firewood) and accordingly, the areas around our towns deprived of the farm-yard manure which they could otherwise obtain to enrich their soil.

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I Its use is not uneconomical as a low temperature is sufficient for most

ordinary cooking.

2 Dr. Henry states that in a thousand pounds of fresh voidings of a cow, there are only 3 lbs of Nitrogen, 2 lbs of Phosphoric acid, and 1 lb of alkalies like potach, lime etc.

An average size bull or cow yields about half a ton of dung-cakes for fuel in the year.1 The number 2 of the cattle in India may be roughly put down at 100 million and, if all these cattle produced fuel. (which is not the case) the total supply from this source will come up to about 50 million tons.

On the Malabar Coast cocoanut shells, cocoanut leaves, and in other parts of South India, the fibrous outer covering of the cocoanut are used as fuel. Straw, dried leaves, and twigs and paddy husk are also collected by the poorer folk and utilised for cooking and for the preparation of parboiled rice from paddy. The dry fibre left after the expression of juice from the sugarcane (megasse) is used for boiling gul or sugarcane juice. And improved furnaces (like the Poona's furance) are coming into wide use. as they can utilise the megasse thoroughly, and make gul-boiling independent of other fuel. The only remaining sources of the fuel required to supplement the forest supplies are those from trees on roads and avenues, on private garden plots, acacia or babul trees growing on fields, tank bunds and tank beds. and occasionally within even irrigated fields, special fuel plantations, run either by the Government (like the well known Changamanga fuel reserve near Lahore in which a plantation of Sissoo and Mulberry is maintained by irrigation carried on from the Doab channels, or the Eucalyptus plantations on the Nilgiris), or by private individuals (like the numerous Casuarina and Korkapulli plantations near Madras), and trees

ture, Bombay, 1911).

4 The Changamanga piantation is worked both for timber and for fuel.

¹ The average American cow is said to void 49 lbs of solid excrement in 24 hours. Such excrement will however contain much water. (Dr. W. A. Herry, "Feeds and Feeding", p. 247). A considerably lower estimate has to be made for the smaller and worsefed Indian cattle.

2 My numbers for the cattle in India are mainly on the basis of the figures given in the Moral and Material Progress Statement, 1911-13, p. 248

seq.

8 See P. C. Patil's Bulletin on the Poons Furnace (Department of Agricul-

growing on Government waste-land. It is noteworthy that trees like babul growing on fields are apt to be destroyed by the progress of cultivation, and that in almost all these cases, except the plantations, the destruction is more steady than natural or artificial reproduction. From the graph I am exhibiting to show the distribution of area in British India, it will be seen how the acreage from which such supplementary fuel supplies can be derived is either inclastic or shows a shrinkage. The same is the case with the Forest area, and the evidence of Forest officers before the Industrial Commission was almost unanimous in denying the possibility of getting much more out of our forests than we now do. Afforestation is unpopular, and there is always a tendency for administrations to disforest lands, and to allow cultivation to be carried on within forest reserves. practice too, which still obtains in many places, of allowing fuel and timber to be extracted by private agency, either on the payment of contract-prices or of seigniorage, has led to wasteful and even ruinous We have also the unideal exploitation of forests. Forester, who regards his function mainly as the production of revenue, even to the detriment of the forests in his charge. 2

It may not be necessary to press the point any further in order to show how, because we have been largely drawing on non-Government sources of firewood, we have allowed the serious and impending shortage in wood-fuel to escape our vigilant attention.

be felled with advantage.

2 It is hardly necessary to emphasise unduly the danger to agriculture, and therefore to the country's-food supplies likely to result from the destruction of trees.

¹ For a rotation which would leave a fuel plantation in undiminished strength, ten years will be required in the case of Casuarina and Cashew, and twenty-five years in the case of Babul and Eucalyptus. The last absorbs the water in subsoil springs so thoroughly that it is not to be recommended for plantations in places where the subsoil springs are apt to dry up in Summer. Fuel trees must attain a 'girth' of at least twenty-eight inches before they can be felled with advantage.

It only remains to indicate very briefly, some of the remedial measures I would propose to correct the evil, when there is still time to do so.

Retrenchment in expenditure and increase in outturn, if feasible, are the two broad lines on which our future policy should run.

In course of time, the habitual dislike of our people to use new fuel or appliances may be partially at least, overcome, and coal, coke and liquid-fuel may come into wider use for such purposes. It is stated on high authority that the existing methods of oilproduction in Burma are uneconomic, dangerous and wasteful,1 and that our collieries (especially those worked by Indian owners) are capable of considerable improvement as regards working.

The consideration of fuel as a main item in Forest working plans, the preparation of careful working plans, the avoidance of unsystematic felling, the improvement of means of communication and transport within forests, the connection of forests with main lines of communication, the avoidance, as far as possible, of irresponsible private agency in the exploitation of forests, the stamping out of fugitive cultivation within the forest reserves, and the extension of forest areas whenever possible, are desirable reforms in Forest working, which might prove helpful in solving the fuel problem.2

The calorific value of different kinds of timber have yet to be systematically worked out, and research work in this direction, as well as in the careful selection of rapid growing species of timber,

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¹ See Sir Thomas Holland's Quinquennial Review of the Mineral Production of India, 1909-1918, (in B. G. S. I., vol. 46,) p. 196; and the Report of the Indian Industrial Commission, pp. 18-21.

2 On these points generally see the Government of India's Quinquennial Reviews of Forest Administration as well as R. S. Troup's "Work of the Forest Department in India" (1917) and older, standard monographs like Sir Dietrich Brandis's "Indian Forestry" (1897) and R. Ribbentrop's "Forestry in British India," (1900).

suitable for fuel and for the climatic and soil conditions of particular localities, is an immediate imperative necessity. I have appended to this paper a list of a few trees, which I am advised by an experienced Forest Officer, are well-suited for selection for growth as fuel. The forest departments may also take up with much advantage the question of the systematic rearing of special fuel plantations in different parts of the country and working them on a rotation, which will keep them in undiminished strength. Lastly, the present haphazard system of fixing prices seigniorage rates (uniform for many Madras districts, irrespective of differences in cost of extraction, transport and local demand) has to yield to the commercial treatment of fuel. Hard as it may sound, the best thing eventually in the interests of the fuel consumer in India will be so to adjust the prices as not to make the Forest Department incur any loss out of confusion of thought or sentimentalism, and to make any rise in the price of fuel fall on the consumer himself, so as to teach him the need to be really economical.

On the industrial side the principal measures I would advocate are the utilisation of water-power whereever it is available, in sufficient quantity. This is particularly possible over the West Coast from Bombay downwards. And if the large interests of the future, in conserving our firewood supplies are considered side by side with the other demand for the power generated, the economic justification for Hydro-electric schemes will become more apparent. In the sparsely wooded area in which Madura, the second city in our province, stands, if only the

¹ The utilisation of the power of the waves for the generation of electricity will probably be out of the question on account of technical and economic difficulties.

Perivar electric scheme had been carried out,1 the saving in fuel alone would have brought salvation to the ever receding forest reserves of not only that district but of distant forests like those on the line of railway in Travancore, from which fuel now goes as far north as Trichinopoly.

The use of heat-saving gas engines may also help indirectly to diminish in some measure the strain on our more exhaustible fuel resources.2

The last point-and one of the most important is the education of the fuel-consumer. At present. thanks to the continuance of types of ovens and fireplaces, which are centuries old, and which were perhaps not harmful in ages when man tropical forest struggled against each other for bare life, is leading to much avoidable waste of fuel. have known cases in which small but sensible improvements in the ovens in use have brought about considerable reductions in a family's fuel-bill. The cheapest and most convenient types to suit local and class requirements have to be thought of, and their use ought to be systematically inculcated by active propagandism. It may even be necessary to alter the traditional shapes and patterns of our domestic cooking vessels, so as to prevent unnecessary loss of heat. Attention to even such trifles will be needed. domestic consumption is the largest, the most elastic and in some ways the least tractable of our several

¹ Sir Alfred Chatterton and Mr. Tressler once prepared a valuable note showing the feasibility and the advantages of the scheme. See "Appendices to the Report of the Indian Industrial Commission," p. 117.

2 I am informed by Mr. I. C. Chacko, B.Sc., A.B.C.S., State Geologist in Travancore, that in his experience producer gas-engines seemed to make the most coonomic use of fuel. He gave a specific instance of such an engine in Travancore which consumed only 20 lbs. of charcoal per hour to produce 35 h. p.—i.e., which converted 33.5 per cent of the available heat into useful work—a result far superior to any obtained from the most efficient steam engines. See John Perry's "Steam Engine and Gas and Oil Engines," 1902; and W. S. Jevon's "The Coal Question" (ed. Flux) pp. 136-7.

Mr. Chacko's producer-gas-engine is 2½ times more efficient in economy of fuel than the most economical steam engine according to Jevons.

types of fuel demand, and an improvement in a small point of detail might mean in the aggregate a tremendous saving to the country.

And lastly, the public attention should be drawn to the urgency and the gravity of the question, and it should form the special study of experts. And, it is because I feel that this should have been done long ago, and that even now it is late enough, that I have ventured to submit these observations to this Conference, in the hope that the question could not have a more auspicious start than in the deliberations of a body of Economists.

ANNEXURE 1

NOTE ON FUEL WORKING CHARGES FROM THE FOREST RESERVES OF SOUTH INDIA

In this note an attempt is made to show the different elements in the cost price of firewood derived from reserved forests in the Presidency of Madras and in Travancore, and their relative position towards one another.

The first item in the cost is seigniorage. The seigniorage rates in the Madras Presidency vary from district to district, being three annas for a cartload in Canara, five annas in Malabar, and twenty-four annas in the Nilgiris. The rate in most districts is six annas. In Travancore the rates are eight and twelve annas a cartload, for local consumption and

¹ Since this paper was submitted to the Economic Conference, I have seen the reprint of an instructive and valuable course of lectures on "Fuel Economy in Cooking Apparatus," delivered at the University of London, in the session of 1918, by Mr. A. H. Barker. The work refers to the domestic conditions of England, but it should prove very suggestive to any one undertaking a similar enquiry in regard to the conditions of cooking and fuel consumption in India. Mr. Barker pays little attention to the patterns of the cooking vessels used. The rules of caste will give this aspect of the subject special importance in India.

export respectively. A cartload is assumed to be the equivalent of half a ton or twenty cubic feet, though in reality eighty, cubic feet of air-dried and stacked firewood would alone make a ton ordinarily.

The charges for felling, billeting and stacking at site range from sixteen to twenty annas for a "stack" (the equivalent of 99 cubic feet of green or 80 cubic feet of air-dried wood) in Madras forests, and twenty to twenty-four annas in Travancore. A stack of green wood is supposed to shrink in six weeks from 99 cubic feet to 80 cubic feet. A. "stack" is the assumed equivalent of a ton.

The transport by head-load from the place of felling to the carting site would involve a further expenditure of four to eight annas a ton.

Cartage rates vary from place to place. The official rates are an anna-and-a-half to two annas per mile in Madras districts, and two-annas-and-a-half in Travancore.

An allowance of three to five per cent has to be made for wastage in fuel stores or depots, owing to peeling of bark, chipping etc., in frequent handling and in carting.

The wastage in the process of splitting the billets of wood into sizes fit for the oven has been found by experiment to range between 12½ and 15 per cent.

Where the market for the fuel is reached by carts from the felling areas, the above elements, together with a reasonable contribution (a) to the establishment charges, in the case of departmental fuel depots or to the cost of management, (b) to the interest on the outlay for weighing machines and their wear and tear, and (c) to the rent of the depots, would practically give the net cost of firewood.

Applying these standards, it is found that the absolute minimum costs, exclusive of contribution to working expenses, rent and capital outlay will come up to rupees 5 a ton in most Madras districts and rupees 6-5 in Travancore. If the due allowances are made, it will be found that the rates of 6 to 7 rupees a ton charged for firewood in the Government Fuel Depots in Travancore involve a clear loss. Where firewood is supplied to railways after selection and sorting, a higher price has to be charged on these accounts. The Travancore Forest Department, for instance, by supplying firewood at 8 rupees a ton, f. o. b. to the railway must in my reckoning meet some loss.

Where the firewood has to be conveyed over a railway, transport charges, loading, unloading and terminal charges, and the payment of the customary "fees" to the subordinate railway staff, cartage to and from the railway stations and ground rent for the railway premises occupied, have to be added to the above rates. Indian railway rates for firewood vary greatly from railway to railway, and are based on degressive scale according to the distance over which the fuel has to be conveyed.

Two specific examples in regard to the firewood supplies of the city of Madura will make this clear. Ayalur is 66 miles from Madura by rail. The nearest fuel reserve to Ayalur is 16 miles from it. The loading and unloading charges are about the same, viz., Rs. 2-8-0 for a wagon load of seven tons. The actual transport charges over the 66 miles of rail-road will be Rs. 13-1-6 for the wagon. Assuming a minimum of Rs. 5 a ton for the cost of supplying fuel from the reserve to Ayalur, and the cartage in the town of Madura from the station to the Depots to be a rupee a ton, a wagon load would cost, just

over 60 rupees. The "other" expenses are reckoned at as much as between Rs. 20 and Rs. 30 per wagon. The absolute minimum cost at the Madura depots will be, therefore, Rs. 11-8 to Rs. 13 a ton.

As a matter of fact, the sale price is much higher as Madura has to draw its supplies from more distant areas like the reserves near Tenmalai, in Travancore, 168 miles off. The bare cost price of Tenmalai firewood at Madura will range from Rs. 16 to Rs. 17-8 a ton. When due allowance is made for losses in transit, municipal taxes etc., it will be seen why firewood which costs at the starting railway stations only Rs. 5 or Rs. 6 a ton, costs nearly four times as much at a city like Madura.

ANNEXURE II

FAST GROWING FUEL SPECIES

- 1. Eucalyptus (Eucalyptus Globulus).
- 2. Grewellia Robusta (Silver Oak).
- 3. Casuarina (Casuarina Equisetifolia).
- 4. Raintree (Pithecolobium Saman).
- 5. Korakkaipule (Inga Dulcis).
- 6. Manjakonnai (Cassia Siamea).
- 7. Konnai (Cassia Fistula).
- 8. Vedathalei (Dichrostachys Cineria).
- 9. Usilai (Albizzia Amara).
- 10. Vagai (Albizzia Lebbek).
- 11. Sila Vagai. (Albizzia Odoratissima).
- 12. Mulberry (Morus Alba).
- 13. Varactia. (Poinciana Elata).
- 14. Kollamavu (Machilus Macrantha).
- 15. Vehhali (Anogeissus Latifolia).

- 16. Athi or Aramboli (Bauhinia mala).
- 17. Cashew nut (Anacardium Occidentale)...
- 18. Punna (Calophyllum inophyllum).
- 19. Parathe (Hibiscus tiliaceus).
- 20. Nelli (Phyllanthus Emblica).
- 21. Vatta (Macaranga tomentosa).
- 22. Pezhu (Carya Arborea).
- 23. Babul (Acacia Aratica).
 Udai (Acacia Latronum).
 Velvelam (Acacia Leucophloea).
- 24. Ayil (Ulmus Integrifolia).
- 25. Elandai (Zizyplus Jujuba).
- 26. Uthiyam (Odina Wodier).
- 27. Pungam (Pongamia Glabra).

LABOR SUPPLY FROM ALLAHABAD AND ADJOINING DISTRICTS

J. P. SRIVASTAVA B.A., F.E.S.,
RESEARCH ASSISTANT, ECONOMICS DEPARTMENT,
THE UNIVERSITY, ALLAHABAD

The object of this paper is to examine briefly the main causes of the deficiency of labor, its potential supply, the current of emigration from Allahabad labor region, and lastly the ways to improve the supply of labor.

Among the various agents and factors of production labor plays an active part. In spite of many labor-saving devices human being remains the most important machine in industrial development. Recently we have had the recommendations of the Industrial Commission for the development of the resources of India but the complaint of the scarcity and dearness of labor comes from every quarter of the country. If the supply of labor is not improved, the Indian industries in future will be confronted with immense difficulties. Now let us see why the present deficiency of labor prevails. The causes of the deficiency of labor are (i) employers are not fully aware of the most suitable places from which to recruit their men (ii) secondly they are Sometime Director of Labor Supply Bureau, Pench Valley Collieries, C. P.

not always sufficiently alive to the need for adopting certain necessary precautions in order to retain laborers after recruitment (iii) employers have not a separate permanent organization to constantly supply and control labor and (iv) the laborers as a class are ignorant of the advantages that they would derive from accepting service in the larger commercial centres of India. Broadly speaking it also appears that the demand of skilled and unskilled laborers is greater in proportion to their supply. If we examine the matter from the supply point of view, taking into consideration the factors which affect the mobility of labor, we would find that India contains a very large supply of untrained but trainable labor from which recruit for the ranks of the semi-skilled workmen who are employed in considerable number by mills, factories and collieries. Admitting that educational and social reform is required to improve the supply of skilled men, many hold rightly that even present in the absence of these reforms, the supply can be bettered, if recruiting and management of labor are gone about in an organized way.

As regards the other complaint from employers about the inefficiency of labor accompanied by a rise of wages, Sir Thomas Holland speaking at Madras observed: "that in India we have means of obtaining all the expert labor that is necessary." The Tata Iron and Steel Works' laborers at Sakchi who only a few years ago were in the jungles of the Santals, without any education, are handling now red hot steel bars, turning out rails, wheels, angles of iron as efficiently as can be done by any English laborer. The whole question is largely of the methods adopted for training people. If labor is properly organized, and educated, we can get results that will suit all raw materials.

POTENTIAL SUPPLY OF LABOR FROM ALLAHABAD AND ADJOINING DISTRICTS

Castes which take up mill labor—In the textile factories of Northern India Musalmans including Julhas and Koris, the Hindu handloom weaver castes supply the largest number of laborers. Next after them come Chamars. The respectable agricultural castes such as Lodhs, Ahirs and Kachis, Kurmis as well as low castes such as Pasis and Buarias are well represented. The Brahmans and the Chatris are employed in sufficient number in the various concerns of Cawnpore.

Castes that are known to take to mining work—The castes that are known to take to mining are generally Ahirs, Lodhs, Kurmis, Kachis, Lohars, Chamars, Pasis, Gaderiyas, Kols, Kewats, Luniyas, Barhis and low caste Musalmans. Thakurs and Brahmans are also found working as miners and fillers though Brahmans are greater in number than the Thakurs.

There is no particular caste prejudice against mill or mine work. It is only the question of getting a man of high caste to realize that he can earn good wages as a mill worker or as a miner. If they once learn the work, they are not content with the wages they earn in other ways, and very rarely they leave the industrial centre they are working in.

In the following lines the potential supply of labor from Allahabad, Fatehpur, Unao, Rai Bareli, Sultanpur, and Partabgarh districts will be discussed. We shall examine the supply of thirteen main castes, from the above six districts: (1) Ahirs (milkmen) (2) Barhis (carpenter) (3) Chamars (4) Gaderiyas (5) Kols (6) Kewats (7) Kori (8) Kurmis (9) Lodhs (10) Lohars (blacksmiths) (11) Luniyas (12) Pasis (13) Julhas and

Sheiks who are known to take up the mill or the mining work.

- 1. Allahabad—The total number of men and women of the above 13 castes is more than 800 The castes which have a population of thousand. more than 100 thousand are Chamars, Ahirs, Kurmis and Pasis. Julahas and Sheiks, Lohars and Koris come next. Allahabad has a fairly good supply of artificers such as blacksmiths. There are more than fifteen thousand Lohars in the district. This district has a large number of Chamars in comparison with other districts taken here. From among the 13 castes selected, the Chamars come first in number. occupy almost the lowest position in the social scale and are employed chiefly as field laborers. number of Pasis who are chiefly tenants or field laborers is more in Allahabad than in any other district.
- 2. Rai Bareli—Occupies the second position in respect to those castes of laborers who are known to be miners and mill laborers. The total number of them is more than 500 thousand. Ahirs, Pasis and Chamars have the potential supply of more than one hundred thousand each. Lodhs, Kurmis, Gaderiyas, Chamars generally prove good miners and a large number of these belonging to this district is found largely in collieries of Central Provinces such as Warrora, Billaharpur, and Pench Valley; Koris, the Hindu weaver class are found in large number here and they predominate as weavers at Cawnpore.
 - 3. Unao—Next after Rai Bareli comes Unao. It is a district very close to Cawnpore where there is a regular demand for labor. There are five hundred

thousand persons of the selected castes. Ahirs, Pasis Chamars are fairly employed in the different concerns in Cawnpore. Chamars occupy the first position and have a population of more than ten thousand. Koris, the best textile laborers are also found here in sufficiently large number. This district has got a larger supply of (Barhi) carpenters than any other district. Pasis and Lodhs who make good miners have a fair supply of them.

- 4. Partabgarh—Like Rai Bareli Partabgarh is well-known for labor supply. Domestic servants of this district are found in the various parts of India. Here too Chamars, Ahirs and Kurmis are predominant. Julhas who are considered thorough and industrious workers by the employers of the textile mills are sufficiently present. In respect to artificers it comes next to Allahabad.
- 5. Sultanpur—It is one of the adjacent districts of Partabgarh. The conditions of labor supply are similar. The first among the labor castes come Chamars. In point of number the supply of this caste in the district comes next to Allahabad. They are equally distributed throughout the whole district and are generally engaged as field laborers and few of these possess the status of tenants. The proprietary holding of Ahirs too is very small.
- 6. Fatchpur—The district possesses more than three hundred thousand of Ahirs, Pasis and other castes selected before. Ahirs and Chamars are significant. After them come Lodhs and Pasis. The low caste Musalmans of the Khaga Tahsil go to Central Provinces and Bengal collieries to take up the work of miners and fillers.

STATEMENT SHOWING POTENTIAL SUPPLY OF LABOR CASTEWISE AND DISTRICTWISE

	11	ALLA	HABAD	RAIB	RAI BARELI	D	UNAO	PARTA	PARTABGARH	SULT	SULTANPUR	FATE	FATEHPUR	Castewise total (number
Castes.		Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	or moorers of each caste in every District).
Ahirs	1	72,459	70,643	65,486	62,819	53,381	46,181	54,263	56,272	61,866	63,732 30,258	30,258	26,697	6,64,057
Barhi (Carpenter)	1	1,171	847	5,221	5,004	6,892	5,827	595	649	5,221	4,898	1,652	1,452	89,439
Chamars	1	77,013	80,479	49,819	52,823	55,073	50,795	50,916	59,711	69,201	74,736	36,877	35,676	6,93,118
Gadariyas	1:	22,067	20,957	15,403	14,837	13,311	11,853	14,871	15,110	12,400	12,364	12,940	12,204	1,78,317
Kols	1	12,113	12,756	:	:	:	:	:	:	:	:	:	:	24,869
Kewats	1	14,668	14,891	:	:	:	:	2,932	2,764	7,305	7,276	13,806	13,171	76,813
Koris	1	10,342	11,293	18,765	18,732	10,041	9,652	1,458	1,641	15,541	16,486	7,434	6,815	1,28,100
Kurmis	:	66,421	65,111	21,145	21,509	9,140	8,389	57,333	54,158	18,949		19,186 20,418	1,876	3,80,630
Lodhs	:	7,365	6,837	33,488	31,872	43,227	39, 283	:	.:	3,647	3,702	3,702 18,679	17,348	2,05,448
Lohar (Black-smith) 12,917	:	12,917	11,896	4,476	4,311	3,947	3,586	8,889	9,101	5,746	5,683	6,505	5,785	82,822
Luniyas	1	4,063	3,707	3,846	3,773	1,559	1,489	5,287	6,009	5,278	5,139	2,388	2,304	44,842
Digitiz Pagis	1	57,710	57,823	57,648	56,685	48,254	44,781	31,237	34,303	19,240	19,411	17,862	16,561	4,61,015
ed by	:	15,397	15,420	1,961	1,802	2,801	2,502	4.893	4,851	4,616	4,886	2,263	1,903	68,295
Sheikhs	:	33,580	32,675	9,653	8,756	29,304	25,634	9,484	10,455	6,119	6,378	10,075	10,115	1,92,228
Districtwise Total (number of laborers in each District.	istric	er	8,12,621	5,6	5,69,834	5,2	5,26,881	4,8	4,97,082	4,79	4,79,006	3,4	3,49,559	32,34,983

The total number of persons of the castes who can possibly take up mill and mine work is three million of which 50 per cent are women. If 2 per cent of the three million men and women are tapped annually, more than sixty thousand of laborers can be supplied to the mills and mines from the above six districts. If an organized effort is made continually, the supply can be doubled and tribled. The census reports of 1911 and the district gazetteers clearly show that the percentage of emigrants in the six districts is much more than 2 per cent.

Current of Emigration

The laborers in Allahabad and its five adjoining districts are sufficiently mobile. Large number of laborers from Allahabad proceed to east as far as Calcutta and the adjacent districts of 24 Parganas, the other labor centres of Bengal and Central Provinces and overseas. At all times an appreciable proportion of the population is absent in search of employment far afield. In the census reports of 1911 it is observed that the increase in emigration in the Allahabad district is probably of a permanent During the last census a decline the number of emigrants in Fatehpur was most noticeable because with the introduction of canal many emigrants came home. Still many laborers go to contiguous districts, to the Pench Valley and Bellaharpur Collieries of Central Provinces and Jheria and other collieries of Bengal. Many of the Rai Bareli, Unao, and Partabgarh laborers are employed underground in the Warrora Government Colliery in the Chanda district. Extensive emigration takes place from Rai Bareli, large numbers of men enter the Indian Army or other Government Service while many go far afield in the pursuit of trade. Of the.

lower castes considerable numbers go to Bengal and Central Provinces for work in the mines and also to Cawnpore and other industrial centres of India. In Partabgarh large numbers of the people migrate elsewhere in order to find work and sometimes go far afield. The most striking feature of the emigration in Partabgarh is that females predominate among the emigrants though there is a considerable proportion of males.

The chief characteristic of the Indian laborers working in the mills or mines is that at certain seasons when the crops are being harvested they return home to help the members of their family in agricultural operations as well as to see their relations who reside in the villages. If their family go with them to work in mills or mines, they will stick longer there and the disturbance caused by their absence at regular intervals will be stopped to a great extent. The predominance of female emigrants is of great economic significance because it indicates how far women are mobile.

COMPARATIVE TABLE OF EMIGRANTS FROM ALLAHABAD AND ADJOINING DISTRICTS

Emigrants

Districts	1901	1911	Variations
Allahabad	117,508	185,208	+14.4
Fatehpur	68,697	62,212	-8.6
Partabgarh	87,696	102,799	+17.2
Sultanpur	102,258	112,568	+9.8
Rai Bareli	88,138	95,957	+10.0
Unao	106,190	95,471	-11.4

From the enquiries which I carried out regarding the supply of labor form Allahabad and its adjoining districts to the Pench Valley Collieries, it seems that though there is a shortage in the supply of the skilled miners, fillers and textile laborers, there is no real difficulty in the amount of labor potentially available. No difficulty in that direction can be experienced if the employers adopt more systematic method of recruitment and try to make the conditions of work in mines and mills more congenial to the laborers.

Recruiting

If recruiting is organized properly by men known in the districts from which it is hoped to draw the recruits then there should be no difficulty in getting a sufficient labor supply by ordinary voluntary methods. The surplus population of the overcrowded tracts does not migrate at once to places where the establishment of new industries offers better chances of employment; such emigration as takes place is usually slow and The demand for labor is continuous. these circumstances it is very necessary that all industrial concerns must have a permanent Labor Department under the charge of a man of good position knowing fully the economic conditions of the recruiting districts. The recruiting should be gone about continously under the supervision of the officer in charge of the Department. In the absence of this kind of institution they can have no possibilities of a steady flow of labor to and from the recruiting districts, mines and factories. The next question arises how to keep a steady flow of labor by recruiting. This brings us to the question of organization and method of recruiting.

The Present System of the Supply of Labor

Before it is pointed out what method and organization for recruiting labor should be adopted, we should know the process generally followed by the Industrial concerns of India. Mostly the work of recruiting is in the hands of illiterate Sardars or

jobbers. They go about here and there without much knowing how to pick up laborers and return to workshops or factories with a certain number of them after spending all the money taken by them. There is none to guide them because employers themselves know less about the conditions of the districts where they can possibly go to for labor supply. Under these circumstances they depend entirely on these Sardars, Mistris or Jobbers whose knowledge of the people and district is limited to their own Tahsil or to their district at the most. Besides this the recruiting work is done here and there at the time when the employers feel the pinch of the scarcity of labor. There is no definite policy to carry out the work.

Organization

The first step in the recruiting organization is the selection of tactful, experienced miners, factory laborers or Sardars of the recruiting districts to work as recruiters. They should never be given the charge of more than a Tahsil because their influence and their knowledge of the people never goes beyond The second thing is that there should be some agency to advertize the conditions of wages of work and advantages of the industrial work. This advertising or educating work should be done through handbills and illustrated pamphlets and also through the laborers themselves who come on leave. must be borne in mind that it is possible through them only if they return home satisfied with the condition of work, wages and the treatment of the employers.

Principle and Method of Recruiting

The underlying principle of recruitment should be to increase the miners or factory laborers population

and the area of recruitment. This policy can be successfully carried out if the right place is selected for canvassing. It is a well-known fact that in India the mobility of labor is largely a question of caste and locality. The villages where laboring class predominates and which have been supplying laborers to the various industrial concerns may be chosen first for recruiting, because people know the conditions of labor there through their relatives and neighbors. It is no use going to a place where high caste people predominate though there may be a few miners or mill hands. India being agricultural country, the consideration of cultivated area and the agricultural season should always be kept in mind by the recruiter. Admitting that cultivation is an attraction it can only be an attraction to those laborers who come from districts where the rabi, the spring crop is the chief crop of the year. Laborers should be recruited from other villages or Tahsils or districts where the rabi insignificant. If at the time of kharif harvest or sowing season, a recruiteer goes to a village where the kharif area is predominant he will hardly find laborers available to migrate to the mines or mills.

Policy of Selecting Men

To increase the population of the experienced workers it is preferable to limit the activities in the first instance towards securing:—

- (a) Labor experienced in mill or mining work.
- (b) Labor which though not experienced is secured through friends who are themselves skilled workers.
- (c) Likely working men who belong to a caste that is known to take to mill or mining work.

If in this way one man or a few men are obtained from a new village, he or they should be put to work in the colliery or factory. After sometime if pleased with the work and pay they are sent back to obtain recruits among their friends, relatives and neighbors, the connection with the villages or part of the district is established. There will probably be a free flow of labor to and from the district and the particular factory or mine. In the selection of labor, physique, caste and general bearing should always be taken into consideration. Recruiting must, however, be gradual and it is not to be expected that a large batch of skilled men can in the first intstance be obtained. It is a matter of time.

Management

To manage the men in the mills and mines is more difficult and important. All money and time spent in recruiting are wasted if the management of laborers in workshops is inefficient. The present state of the management in factories and collieries is not satisfactory. The "Sardars" or "Mathes" have an upper hand in it. These jobbers find to their interest that there should be frequent changes among the hands. They put difficulties not only in the way of new laborers who are at the mercy of these jobbers but also new persons who take up the task of improving the supply of labor.

Mr. Fremantle in his report on the conditions of labor in the United Provinces points out that "the Indian laborer must be led and not driven. It is not as in the inhabitants of western lands consumed by the desire to rise in the world. The caste and joint family system hold him back and he is content with the same simple fare and surroundings as his father had before him. If dissatisfied with the

conditions of work in the town, he will make no complaint but go back to his village life". If the laborers are sympathetically trained, properly treated, housed, fed and are provided with various amenities of life the centres of industries will be made more attractive and the workmen will be induced to live there permanently in spite of their attachment to their village homes. The persian proverb runs thus: "majdur khush dil kunad kar baish" a pleased or satisfied workman does much work. The present remedy of the deficiency of labor lies in the organized recruiting and efficient labor management in factories and mines.

PROCEEDINGS

OF THE

ECONOMIC CONFERENCE BOMBAY. 1918-19

MONDAY, DECEMBER 30th, 1918. Morning Session.

The Conference assembled by kind permission of the Syndicate in the Senate Hall of the University of Bombay. Invitations to attend the Conference had been sent by the Honorary Secretary (Professor Percy Anstey) to all professors of economics in universities and colleges throughout India, so far as their names could be ascertained, certain other persons whose published writings had given evidence of a keen interest in, and understanding A record of the names and addresses of, economic science. of persons who attended by invitation was taken, and it was found that 34 were present on the first day. accordance with a notice sent to the Press the public were admitted as visitors to seats behind those reserved for members: and about 70 or 80 visitors attended the opening session.

At 11-15 a.m. the President of the Conference, Professor Percy Anstey, took the Chair and delivered his Address of Welcome (see p. 449). At the conclusion he called upon Professor Kale to read his paper.

DISCUSSION of PROFESSOR V. G. KALE'S Paper—A Study in Village Economics (see p. 462).

THE HON'BLE MR. G. F. KEATINGE said that Government could hardly be expected to welcome non-official collaboration in making Settlement Reports which would mean subjecting

the work of Settlement officers to criticism by persons who had no experience of the facts. He also said that Kanara could not be taken as a district typical of any part of the Bombay Presidency.

PROFESSOR JEVONS said that he thought Mr. Keatinge misunderstood Professor Kale, and that the latter did not mean that non-officials should merely assist the Settlement Officer in interpreting and deciding upon facts which he (the settlement officer) had collected alone, but rather that non-officials might be associated with the enquiry from the very beginning. Personally he saw no harm, and a possible benefit, in allowing two or three advanced students of economics who had gained experience in making inquiries to work with a settlement officer if the latter desired it. A very important question which he wished to raise was the purpose of the extensive surveys proposed by Professor Kale. If it was only to obtain a precise scientific knowledge of the facts, the great labor involved possibly might be better expended. He strongly advocated that rural surveys should be specifically directed to the purpose of discovering what roads and other works were required to develope the country and how agriculture could be best improved.

PROFESSOR J. C. COYAJEE thought it was not usual to associate private inquirers with officers of Government carrying out their official duties. Non-officials interested in particular economic questions must hold independent inquiries, and help to settle controversies by fully elucidating the facts. There was ample scope for non-official work in this direction.

THE HON'BLE MR. LALLUBHAI SAMALDAS thought that rural inquiries as proposed by Professor Kale should be undertaken either in conjunction with Government officers or wholly unofficially. One unofficial inquiry with which he had been associated had unfortunately fizzled out. He could not say what was the reason: it was not for financial reasons. If an unofficial committee could be formed to carry out rural economic inquiries he was willing to make himself responsible for raising the necessary funds for its work.

PROFESSOR BURNETT HURST thought that it would be useless to attempt to carry out such a rural inquiry without having some paid investigators giving their whole time to

the work. This would cost a good deal, and it would be difficult to finance the inquiry.

The Hon'ble Mr. Lallubhai Samaldas here interjected that he had already said that he would be responsible for finding whatever funds were necessary.

PROFESSOR BURNETT HURST in continuation dealt with the association of college students of economics classes with such an inquiry which he would recommend. Students could do such work satisfactorily during their vacations.

DR. GILBERT SLATER said that the University of Madras was endeavoring to interest undergraduate students in simple forms of economic inquiry, and also provided some research studentships for graduates in economics. The point of the paper was the desirability of securing co-operation between Government and prefessional economists. He believed that it was still necessary for the academic training of the universities to win its spurs; and to convince the various Indian Governments that students were being turned out who were out for truth and nothing but the truth, and competent to undertake needed inquiries. Then the governments would soon be glad to make use of them.

PROFESSOR K. V. RANGASWAMI AIYANGAR said that a general criticism by non-officials of the careful and detailed inquiries of Government officers after they had been completed would not be warranted. It was his wish that an arrangement might be made to associate the academic spirit of inquiry with the technical skill and purpose of Government officials, and to encourage students in exact economic inquiries.

Dr. HAROLD MANN said that his own experience was that it was advantageous to make economic inquiries in completely non-official manner. He had found that the attitude of the people was quite different when he went to make inquiries in company of a settlement officer and when he went alone.

PROFESSOR PERGY ANSTEY also supported the view that it was not desirable for non-official inquirers to be associated with the investigations undertaken for a specific purpose of (lovernment like a settlement.

PROFESSOR B. G. SAPRE (of Poona) also spoke.

PROFESSOR KALE replied that Mr. Keatinge has misunderstood him. In his paper the settlement report of Kanara

District had been taken, not as typical of any part of the country, but as typical of the manner in which the subject is handled in settlement reports. If the spirit of his suggestion of unofficial collaboration with Government were to be adopted, he would not mind exactly how it should be carried out.

DISCUSSION of Dr. HAROLD MANN'S paper—First Investigations on the Efficiency of Agricultural Labor in Western India (See p. 465).

THE HON'BLE MR. KEATINGE said that before accepting Dr. Mann's figures one ought to know all the conditions of each case, especially how far other circumstances were the same in the cases which were compared. It was an important point that the figures did not take account of the He could give the cutting of efficiency of animal labor. sugar-cape as an instance of the difficulty of comparing the efficiency of labor in different countries. In America, although the negro is paid three times as much in wages as the Indian laborer, yet it costs more per ton to cut cane in India than in America. In his opinion sufficient public attention had not been directed to the very great waste arising from the idleness of the rural population. For example, he believed that one-third of the adult male population of Dharwar did no work of any kind; and the rest worked for only about 120 days in the year-that is to say, they worked on the average only four hours a day.

PROFESSOR H. A. HANSON (of Lucknow) said that the previous comparisons of the efficiency of Indian and European labor which had been mentioned were on the basis of country implements being used by the Indian labor, in Dr. Harold Mann's observations, however, the modern plough was used in both cases.

DR. GILBERT SLATER said that when a comparison was made between the efficiency of Indian and European labor in textile mills, the machinery used in both cases was almost identical. There would be some difference in the efficiency of management and supervision; but even omitting this we had practically a good measure of relative efficiency of Indian and European labor, as the great difference observed was almost entirely due to the difference in efficiency of the workpeople. He gave instances showing

very great differences in the relative efficiency of Indian and European labor. For example, statistics obtained at the Buckingham and Carnatic mills showed that the output per employee in English mills was 2½ times as great as at those mills. On the other hand, when he had visited the Arsenal Workshops at Ichapore, near Calcutta, he had found that for certain kinds of work Indian workmen were actually more efficient than English workmen, and the cost of such labor was considerably less. He felt that this question of the relative efficiency of Indian labor was a very difficult one. The more one inquired, the more puzzled one became.

We had perhaps overlooked the great dependence of labor upon supervision for its efficiency. More supervision was required in India per unit of labor; but, as a subject of study, the art of supervising labor was almost a new idea in India. An enormous opening for industrial prosperity and general progress existed in finding the correct methods of directing and stimulating laborers in India.

PROFESSOR C. D. THOMPSON (of Allahabad) said that the experience at collieries in the Jherria coalfield was that Indian labor was very inefficient and that the increased supervision necessary to train the labor and maintain a high standard was too expensive and did not pay for itself. Probably this was due mainly to the fact that the laborers who were attracted to the coalfield had no ambition and no sense of duty.

PROFESSOR K. V. RANGASWAMI AIYANGAR (of Trivandrum) thought from his own experience that there was justification for the demand that high caste workers should be paid higher wages than persons of low caste for the same work. His view was not due to prejudice; the need for differentiation between castes was largely a matter of food, the customary standards of requirements in this respect being very different in the different castes. If high caste workers were to be employed in industries, it must be at wages which would provide them with sufficient food. His experience was that the same laborer when better fed greatly improved in his efficiency.

PROFESSOR M. J. ANTIA said that as regards efficiency of labor in India we should make a distinction between manual work and work in which mental effort determines the result of the work done. As regards manual work Indians

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are (as a rule) less vigorous, and have less staying power than people in other countries, especially where the climate is not so trying; and it is not surprising to find that an average Indian workman does not turn out as much work as a manual worker in other countries. But as regards work in which mental faculties and deftness of touch play a greater part, Indians, when properly trained, are capable of putting in as good (if not better) work than other people. He gave as an instance the results of experience at the Tata Iron and Steel Works where Indian labor, trained at the Works, had replaced American labor in certain cases (as in the rolling mills), and had proved more efficient in output.

DR. HAROLD MANN replied briefly. He said it was obvious that the economic stimulus to labor was not sufficient in India to keep the people steadily at work and make them anxious to improve themselves. We ought to make it our business to find out by experiments and by studying the people what is the proper stimulus to work in India to which the people would react. He thought himself justified in saying that there must be stimulus more effective than the economic one of money wages; and without doubt it could be found if the problem were seriously studied. No problem was of greater practical importance at the present time than this of increasing the efficiency of the methods of work in India, on the one hand, and dispelling the lethargy and easy contentment of the illiterate classes, on the other hand.

MONDAY DECEMBER 30th, 1918. Afternoon Session.

DISCUSSION of PROFESSOR J. C. COYAJEE'S paper—Some Lines of Co-operative Progress (see p. 489).

MR. MANILAL. B. NANAVATI (of Baroda) said that cooperative societies should strictly confine themselves to carrying on their business in the villages. Any kind of political representation was undesirable.

DR. GILBERT SLATER (of Madras) said that, as regards Professors Coyajee's suggestion that by the origanization of co-operative societies amongst industrial workers many of the functions of trade unions would be served without the excesses of the latter movement, he admitted that there were dangers connected with the spread of trade unionism,

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as with every movement which is full of hope. Professor Coyajee seemed to him to suggest the idea that by development of co-operation a growth of trade unionism in India could be dispensed with. The experience of Great Britain, on the contrary, indicated that the growth of the higher forms of co-operation other than co-operative credit, so vigorous in Great Britain, could only take place in conjunction with strong trade unionism; and the advantages of profit-sharing and labor co-partnership were illusory apart from this. Trade unionism, in his opinion, was vitally necessary for India.

THE HON'BLE MR. LALLUBHAI SAMALDAS protested against the views of the last speaker. He considered it most undesirable to allow a spirit of opposition between labor and capital to grow up in India. He would hope that co-operation could bring about better feeling between labor and capital, and between the village sahukar and the cultivator. Let some way be found to bring the sahukar into the co-operative organization. He was in favor of having a State-aided apex bank for India, or central State bank to assist the finance of the co-operative movement. He described the results of trying to establish co-operative societies amongst mill hands in Bombay. His friends had met with some disappointment as it was a very difficult task to make the workers realise their responsibilities to societies, and Professor Covaice had given them too much credit for what they had actually done. Still they would go on trying and forming more societies.

PROFESSOR TANNAN (of Bombay) could not agree that part of the fiduciary portion of the Paper Currency Reserve should be used to finance co-operation; because co-operative credit could not be regarded as good enough in case a realisation of loans made from this Reserve became necessary. As regards co-operation in producing concerns, the fact was that the work people were not really in a position to take the risk.

PROFESSOR K.V. RANGASWAMI AIYANGAR (of Trivandrum) said that the higher development of co-operation undoubtedly required the formation of a permanent service of paid officers of co-operative societies, such as paid secretaries, inspectors, and so forth. He thought that, if political representation were granted to the movement, it would be a moderating influence in political assemblies. Co-operation tended to

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bring harmony to conflicting interests. He did not feel that the co-operative movement was likely to be injured by the proposal of political representation made by Professor Coyajee.

PROFESSOR COMMISSARIAT (of Ahmedabad) said that it was very desirable to keep co-operation outside village politics. He was afraid societies would break up if they got entangled in political controversies.

PROFESSOR COYAJEE replied that if the two-party system became established in India, it would be impossible to keep political divisions out of village pelitics, and the two-party system must be reflected in a division of opinion within the societies themselves.

DISCUSSION of Mr. R.B. EWBANK'S paper—The Co-operative Movement and the Present Famine in the Bombay Presidency (see p. 477).

PROFESSOR COYAJEE (of Calcutta) asked whether it would not be useful to encourage co-operative societies to store grain in their own granaries in the villages. If done on an adequate scale this would be an effective protection against famine. He also thought that co-operative societies could be made use of more freely both by district officers both for obtaining information as to economic conditions and as channels for distributing takavi loans.

THE HON'BLE MR. KEATINGE thought that the provision of granaries had better be left to the banias, who were more competent to manage them than the co-operative societies.

MR. M. B. NANAVATI (of Baroda) urged that reserves should be largely invested outside the society's business in readily realizable form so as to be available in time of famine. It might be possible to fix a definite percentage of the reserve which should always be kept in liquid form.

Professor Jevons (of Allahabad) said that the best means of protecting co-operative credit societies from the effects of famines in the future would be for the societies to stimulate and assist their members to improve their cultivation, and especially to improve their land. This would provide a material (and durable) basis of credit. Permanent improvements of land were, in fact, the essential basis of credit for rural co-operative societies. Co-operation itself did not create credit, but simply mobilized it. By

putting capital into the land, however, they would really create a reserve of credit in the increased market value of the land which could be utilized if the improvements themselves failed to prevent disaster overtaking the crops. He personally approved of the idea of co-operative societies having their own granaries in the villages if done on an adequate scale, so that the society could employ a special man to be in charge of them. Rules of management of the granaries could be drawn up and approved by the Registrar of Co-operative Societies.

PROFESSOR E. A. HORNE (of Patna) expressed surprise that Mr. Ewbank apparently viewed with equanimity the necessity in famine years of putting moral pressure on depositors not to withdraw their money.

DR. GILBERT SLATER (of Madras) said co-operative credit societies, when fully established, created a need for purchase, sale and distributive societies working parallel with them. In his view the proper protection against famine was the accumulation of savings by members themselves; and it was obvious that the practice of saving needed to be greatly stimulated so as to meet adverse years. Possibly the best plan would be to have separate savings banks established with branches, or agents residing in or visiting the villages. Co-operative societies appeared to be open to certain objections as savings banks.

PROFESSOR ANTIA thought the question of fodder supply was of the greatest importance. The fact of Bombay being near to the seats of war, in the sense of being the principal base of supply, had possibly led to the surrounding territories being especially denuded of fodder reserves, and consequently to the present difficulties in supplying fodder to the drought stricken districts. It should not be forgotten that a famine caused wide-spread unemployment, and a good means of alleviating this would be the establishment of cottage industries on which the people could fall back according to their necessities.

MR. EWBANK in reply to the discussion on his paper, said that with regard to Professor Coyajee's enquiry as to whether co-operative granaries might not be useful safeguards against famine, he distinguished two classes of granaries. The first were intended for the most backward jungle tribes who in normal years consume their stock of se

grain before the end of March and have to be kept alive till the next harvest by their Sowkars. These granaries, if proper management could be secured, were always very useful. The second class were those granaries in which cultivators stored their surplus grain in good years a provision for bad years. These were not popular, as now a days his experience was that cultivators preferred to sell their grain, maintain their savings in cash, and trust to being able to buy imported grain when a famine came round. With regard to using societies more freely for the distribution of takavi he explained the system prevailing in the Bombay Presidency and added that he saw no way out of the present dilemma. It was intolerable that two agencies, the Mamlatdar and the co-operative credit societies, should both be financing side by side the same cultivators for similar objects. On the other hand to grant takavi to societies would amount to state subsidy and would certainly enfeeble their spirit and undermine their independence.

He was entirely in agreement with Professor Coyajee that societies might well be used more freely by district officers as channels for obtaining economic information about the people. He agreed with Mr. Nauvati in the necessity of maintaining liquid reserves which would be available in famine, but thought that at present any definite percentage of the reserve fund would be too small to be of any practical use. Professor Jevons remark that co-operation did not create credit but simply mobilized it, was true; but was not perhaps the whole truth. The existence of a good society of the Raiffeisen type had a wonderful moral effect and undoubtedly tended to make each individual member a more valuable ecenomic unit.

He assured Professor Horne that pressure was not put on depositors, except by their neighbors, to refrain from withdrawing deposits in famine years. On the contrary the Provincial Bank was conserving its resources with a view to helping societies to meet withdrawals of deposits punctully and the importance of this was constantly kept in view.

He welcomed Professor Slater's view that the existence of credit societies created a need for parallel purchase, and sale, and distributive societies, and fully endorsed it. He was strongly opposed, however, to his suggestion that separate savings banks were required in addition to co-opera-

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tive credit societies, and maintained that thrift and savings were the basis of co-operative credit and that if they were turned in any other direction, societies must fail. He thought that Mr. Antia's interesting remarks about fodder and the unemployment question fell rather outside the scope of his paper.

In the absence of Mr. E. A. Molony I.C.S., (Commissioner, Agra Division) his paper on the *Economy in the Use of Water for Irrigation* (for Summary, see p. 520) was read by the Honorary Secretary, Professor Jevons. There was a brief discussion.

DR. HAROLD MANN said that the author's suggestion of passing the water directly into the sub-soil through porous pipes had already passed the experimental stage and come widely into use in Western America. The pipes required to be very carefully laid and could be used only for valuable crops. He entirely endorsed the author's remarks as to the need of economy in the use of canal water.

PROFESSOR JEVONS remarked that it was very unlikely that the system of sub-soil irrigation could be applied in India except for lands near towns and where water is scarce, or costly to raise, because of the considerable capital cost of laying the pipes, which work must be closely supervised by a skilled surveyor, as the least error in grading would soon cause a stoppage and involve relaying the pipes. An ingenious suggestion had lately been made that the same system of sub-soil pipes could be arranged to serve alternately for irrigation and for drainage to remove any surplus water and assist aeration of the soil.

TUESDAY, DECEMBER 31st, 1918. Morning Session.

A PAPER was read by Professor H. Stanley Jevons (of Allahabad)
on The Finance of Economic Development (see page 564).

Notes of the Discussion were not kept.

DISCUSSION of paper by Professor C. D. Thompson (of Allahabad) on *Modern Mercantilism in India* (page 507).

PROFESSOR JEVONS said that Professor Thompson had opened up an important line of study. More explanation was however, necessary on two points: (a) was there not some justification for the importance which the Mercantilists attached to the acquisition of gold by the balance of trade?

Medieval England had experience of shortages of gold and silver currency and consequent deleterious fall of prices, (b) It was a startling assertion that Neo-Malthusianism might become a danger to India. In the speaker's opinion it was desirable to avoid a too large increase of population in India.

PROFESSOR KALE said that Mercantilism was in the main justified, because economic policy must be adapted to the existing economic circumstances. Even now such circumstances have caused a revulsion of feeling in the British Empire against free trade and laisser faire, and an effort to make the Empire self-sufficient. This also accounted for such Mercantilistic views as exist in India; but the parallelism is vitiated because the Indian Government follows a policy of indifference, and as a reaction it is the people who cherish mercantilistic sentiments. Yet India as a nation has no mercantilistic notions about gold; of which the imports are small looking to the volume of Indian population. imports are necessary as long as our currency is not based on a stable gold basis. Taking actual facts into consideration we do not find any special mercantilistic traits in India.

PROFESSOR ANSTEY thought that the discussion had gone off into one particular aspect of mercantilism, viz, protection. As to that we should not confine our attention to two countries, such as Germany and America, which have possibly profited by Protection; for France has not. If self-sufficiency were to be pushed by each country to an extreme there would be eternal quarrels. Mercantilism was far more than a system of Protection. It took account of internal measures for the country; and we might feel more sympathy with Neomercantilism in India when we saw attempts made to give a better market to home goods. On the other hand he thought we could have no sympathy for the selfish efforts of capital or capitalists working only in their own interests.

PROFESSOR THOMPSON replied that the Mercantilists held very diverse views on the subject of currency. Probably their difficulties were more in the nature of financial panics than a regular difficulty in obtaining gold. As to Neo-Malthusianism, it would only apply in the future, and to particular classes. Any means which is moral may be used to check the growth of population. But serious inquiries concerning Neo-Malthusian practices are now being made in India, and in his opinion such practices were to be condemned.

We could not admit, as Professor Kale's words might seem to suggest, that policies which are contrary to economic theory can be approved in practice. We must show that the theory upholds the practice in the case under consideration. Thus economic theory does not condemn, but upholds protection of industries whose cost of production may be expected to decrease as they develop, especially if the duties be moderate and on a sliding scale. In saying that India held Mercantilistic views he did not mean to condemn them. On the contrary, he had shown that their policies were right in many cases, even where their arguments were wrong. The paper was intended to show that India's imports of gold were only her fair share. India should have the requisite State Aid for her industries, including protection with the safeguards suggested, and probably a gold currency also.

In answer to Professor Slater, Professor Thompson admitted that he should have said "gold and silver" in many places where he had written "gold" alone.

On the afternoon of December 31st's business meeting of the members of the conference was held to discuss and adopt a Constitution for the Indian Economic Association. A Drafting Committee was appointed which reported to another business meeting held immediately after the morning session of the Conference on the following day, January 1st, 1919. The minutes of this meeting, and the Constitution and Rules of the Association have been printed, and may be obtained by members of the Association by application to the Honorary Secretary: Professor J. C. Coyajee, M.A., Presidency College, Calcutta.

WEDNESDAY, JANUARY 1st, 1919. Morning Session.

DISCUSSION of paper by Mr. E. V. SUNDARAM REDDI, (Honorary Secretary, Ryotwari Landholders Association, Madras) on The Distribution of Agricultural Holdings (see page 522).

THE HON'BLE MR. KEATINGE said that the size of an economic holding and the number of strips of which it should consist were questions which should be left to local consideration: no general discussion would be fruitful. There have been difficulties in the way of change; but we have come now to a parting of the ways. If a government or a party stood not for economic progress, but for religious

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ideals and traditions there was nothing more to be said. As, however, a large kody of people were genuinely desirous of going ahead, the religious and social objections should not be permitted to stand in the way. It was his opinion that until something had been done in the matter of reconstituting holdings, agricultural progress would be impossible.

PROFESSOR BALKRISHNA said that the lecturer had not noticed the diminishing productivity of, and increasing pressure on land. The trouble was all the greater in India on account of the growing ruralization of the country. This ruralization was a greater evil than the reduced size of holdings. The law of equal partition could not be abolished in these days of democracy, and it had not done any harm in France.

PROFESSOR JEVONS pointed out that the law of equal partition need not be abolished nor need primogeniture be introduced. The estate should be held intact by one heir while the other heirs would be entitled to equal shares in the income. He had been informed that an enterprising deputy collector in a Government village in the United Provinces had carried out with the consent of the Board of Revenue a rearrangement of the holdings there to the satisfaction of the villages. In the Punjab such work of redistribution was habitually done, so that the idea was not new in India.

MR. NANAVATI said that he would extend to the judicial department the practice of the revenue department in not recognizing subdivision of land beyond a certain limit. Hindu law did not say that every piece of land should be partitioned—it only required a partition of the whole property of the deceased.

PROFESSOR RANGASWAMI AIYANGAR drew attention to a custom in Tanjore and Bellary of consolidating holdings by voluntary exchange. It was an old custom which had now fallen into disuse. He was afraid that if, on the other hand, the land were to be held without partition in the hand of one heir only he would not cultivate it very carefully; and such a state of things would cause much litigation. As to the idea of pre-emption, it could not be imported without the greatest difficulty into Hindu Law.

PROFESSOR THOMPSON drew attention to co-operative societies started in some places in Germany to buy up small holdings, thus making new and compact farms of reasonable size.

MR. REDDI in his reply drew a contrast between the old customs of redistribution of land for securing equality of facilities and the present idea of voluntary exchange. *Kariolis* for redistribution of land used to be made every five or ten years. He knew of a case which had been actually filed. He insisted on the necessity of an alteration of Hindu Law.

A PAPER was read by Mr. J. P. SRIVASTAVA B.A. (Research Assistant in the Economics Department, University of Allahabad) on Labor Supply from Allahabad and Adjoining Districts.

Professor E. A. HORNE (of Patna) asked a question as regards the author's actual experience of recruiting work which was satisfactorily answered.

WEDNESDAY, JANUARY 1st, 1919. Afternoon Session.

DISCUSSION of PAPER by Professor K. V. RANGASWAMI AIYANGAR (of Trivandrum) on The Fuel Problem with Special Reference to Southern India.

PROFESSOR SLATER (of Madras) said that the question of fuel was undoubtedly one of the most urgent in Indian economy. It was probable that on dry lands, as in the Deccan, great injury was inflicted on Indian agriculture by the consumption of cowdung for household purposes. It was important to study the varieties of trees which can most develop our fuel resources, e.g., a good ecualyptus plantation could give twelve tons of wood per annum per acre, and Casurina five tons, as against a yield of only about half a ton per acre per annum from ordinary South Indian forests.

PROFESSOR JEVONS said that two years ago he had made a rough calculation of the probable duration of the coal reserves in India keeping in mind the cost at which it could be mined. His conclusion was that the coal might last two hundred years or even longer. A very large proportion of our coal was of third or fourth quality; but the ashy coal could be used with good results in specially contrived boiler furnaces. His estimate did not presuppose any great expansion of domestic use of coal. This demand however could only grow much in the Ganges Valley and Central Provinces. As to cowdung we should not look to it as fuel at all, if we cared for the prospects of Indian agriculture. We should rather plant all over waste

areas babool and other quick growing trees such as Professor Slater had mentioned, and this should be the work of a branch of the Agricultural Department. Sun power might ultimately be used, and to start with it would be used in places where coal is expensive.

PROFESSOR KALE said that Professor Rangaswami had drawn too dark a picture, and that our fuel resources were not limited, owing to the existence of substitutes. High prices of fuel might induce people to take up the industry of planting trees on private properties. As to our industries we might adopt and utilise the heat of the sun.

PROFESSOR TANNAN said that Government had been inducing peasants in Madras to plant trees on Government lands.

PROFESSOR RANGASWAMI AIYANGAR said that sun power was obtainable most abundantly in deserts and waste places far from industrial centres, and would therefore go a very small way towards staisfying our needs. He had shown that domestic use was the biggest item on the side of demand; and how could a man in the interior of India cook his food with sun heat or wave or tidal power generated nearly a thousand miles away?

Thereafter a PAPER was read by the Rev. H. W. LYONS (Indore Christian College, Indore) on The Relation of the Economics Departments of the Indian Colleges to the Problems of Indian Economics. (see page 539; the title was altered for printing).

Notes of the Discussion were not preserved.

Owing to the lateness of the hour the question was then put to the Conference whether the following three papers should be taken as read:—

Professor P. C. BASU on The Earliest Agricultural Organization in India and its Methods. (see page 609).

PROFESSOR BALKRISHNA (Gurukul College, Hardwar) on Economics in Ancient India. (see page 629).

PROFESSOR BRIJ NARAIN on The Gold Exchange System— How it led to the rise of prices before the war and how it broke down during the war (not printed in this volume). It was agreed that these papers be taken as read.

The Chairman then reminded the members present that the next Conference would be held in Madras, by the kind invitation of the Syndicate of the University, on the four days commencing December 30th, 1919. He then declared the Conference closed.

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